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MR. LOWELL'S REPORT ON FAT CATTLE, BULLS AND BULL CALVES, WITH SOME PREFATORY REMARKS.

The Committee of the Trustees of this Society appointed to make the arrangements of our annual festival, desirous of *economising* the time of the public, proposed some material and important changes with this view. Among the rest, they determined that it was inexpedient on the first day of the Cattle Show to have *any* ceremonies or *public* address. These were found to consume so much time, that it was almost impossible for the Committees to perform their duty with that ease and intelligence, which justice to the competitors seemed to require. No time sufficient for the purpose was left for deliberation, and the preparation of the Reports. By the suppression of the ceremonies and Address, they were enabled to make the trial of working cattle on the *first* day, which is a great convenience to competitors. It was hardly fair, and certainly not humane, to suffer the animals which had been employed in the Ploughing Match, to proceed *instantly* to the trial of their strength and skill in drawing heavy weights, and in the various movements necessary to form an opinion of their powers and training.

Another benefit was contemplated by the change. The

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collection of such a concourse of people, and such a concurrence of fine animals, seemed to offer a fit occasion favourable to the seller and purchaser, for a Fair or auction of cattle and of other objects presented for show. Hitherto this sale being on the second day, not only obliged the owners of animals, and of goods intended to be sold, to remain at great expense to await the auction, but as the collection of persons who might be purchasers was much smaller on the second day than on the first, much, if not the greater part of the benefits proffered by this fair were lost. The animals and the goods were (it was feared) often sacrificed, and thus one of the objects contemplated was in a great degree frustrated.

We hope that the change will prove beneficial, though it can only be tested by experiment.

In conformity with the same views of economising time, the Committee proposed that the reading of the Reports of the several Committees should be dispensed with, and they publicly announced that the *list* of premiums *only* should be read, and the whole proceedings should be closed by an *extemporaneous* address from the President. To this last suggestion I have always felt an invincible repugnance. It is true that on most of the preceding anniversaries of the Brighton Show I have made some cursory and unprepared remarks, but I have since thought that the practice ought to be discontinued. If any remarks which an individual should or could suggest on such a public occasion, in which we are honoured by the attendance of farmers, manufacturers and other citizens, from all parts of the State, *could* be worthy of their attention, it surely would be more respectful as well as more useful, to devote some *little previous* thought, to make them so. I agree that they should not be elaborate,—that they should be familiar, simple, easy, natural. They should partake of the character of oral or extemporaneous communications. They should not be such as ought to be the fair subjects of criticism,

except with respect to the *thoughts*; those must and ought to be subject to strict examination. There are unquestionably some highly gifted minds, whose *first* thoughts are so *sound*, and whose mode of expressing them extemporaneously is so happy, that no painful feelings are excited from the hesitation or confusion of the speaker. But it seems to me that the topics of agriculture and manufactures do not afford scope for any display of eloquence, and that any effort to bestow ornament upon them is much worse than lost. To speak fluently and persuasively on *any* subject, we must be *excited in some degree above our natural and ordinary tone of feeling*. We *can* be so excited as to great *moral* and *religious* truths. We *can* be so excited at the bar, when the lives, fortunes, and reputation of our fellow men are at stake. We can *scarcely fail* to be so *excited*, when in legislative assemblies we are discussing the great interests of a state or nation: but how is it possible to raise our feelings to the lowest strain of eloquence, when we are descanting upon the comparative merits of various racesof cattle, or different modes of culture of the soil?

It seems to me impossible.—But if it were possible to *others*, it is not to the individual, who now addresses you, who feels, that he never possessed that power, *that rare* and *almost supernatural gift*, sometimes *dangerous* in *its exercise*, of influencing the opinions of others by *original thoughts*, rapidly expressed in *glowing and kindling* language.

The great object of this, and of all the other almost innumerable societies throughout Europe and America (and their influence now extends to nearly 100 millions of people) is to encourage improvements in agriculture, and the mechanic arts closely connected with it, particularly domestic productions in private families—not that we feel indifferent to the success of those extensive and splendid *joint stock* companies, which by underselling the productions of foreign countries open a wide field for the encouragement of our industry, yet our *peculiar* province is to encourage

the promotion of improved modes of culture, to enable these old and highly populous states to retain their excellent, well educated population at *home*, rather than to force them abroad to acquire a precarious support in new countries, at the sacrifice of health, and in some cases of subsistence. Such are the legitimate, wise, and reasonable objects of all our agricultural associations in New England. We know very well from the example of Great Britain, that New England alone is capable of sustaining a population of 16 millions instead of two. We are convinced, that by remaining at *home*, much more and greater personal comfort will be secured to the individual—much greater opportunities afforded for literary, moral and religious instruction. It is therefore our first duty by all the means in our power to render our section of the country a desirable place of residence to our population. Nobody has a right to *quarrel* with us for attempting to make that population happy and prosperous, and for affording them inducements to stay at home. When *we emigrate*, they sometimes laugh at us for our sharpness, and shrewdness, the necessary result of our superior modes of *early* education. Surely they who so complain, will find no fault, if by improving our farms, by increasing the amount of purely domestic productions, and by availing ourselves of the advantages which God the author of all good has purposely given us, of our excellent *mill* privileges, we attempt to check the emigration of our citizens towards other states, where their *superior sagacity* is deemed *cunning*, and their *superior* industry is sometimes branded with the opprobrious name of *avarice* and *overreaching*.

It is, it appears to me, time that New England should take care of itself, instead of permitting its territory to be depopulated by emigration. It is by the fair and active use of the proper means to accomplish this most desirable end, that New England, if it shall persevere in the present energy and intensity of its exertions, will bear to the other

portions of the United States in fifty years, a proportion far greater than it has hitherto borne.

It is pertinent in this view for us to consider what have been the moral and political means, which have raised Great Britain to its present high state of productive industry. I cannot give you a better nor a more condensed view of that state (I might almost call it a miraculous change) than by a very short notice introduced into the *Edinburgh Observer*, and copied into that excellent work, the American Farmer, edited by a man of strong powers of mind, John S. Skinner, Esq.

"In seventy years the people of Great Britain have advanced full eight millions in number.—Fifty years ago the very existence of canals was matter of incredulity, (recollect that this was so late as the commencement of the war with her colonies here, and that she has been engaged in 30 years of expensive warfare since that period) sixty-six millions of dollars have since been expended on canals, and at least half as much more are now devoted to new unfinished projects of this description. Fifty years since there was scarcely a steam engine in the country—there cannot be now less than 12000—a creation of power at least equal to the labour of 250,000 horses, an energy which in a single day would have erected the greatest pyramid of Egypt, heretofore the astonishment of mankind.—Fifty years since the export of manufactured cotton did not amount to a million of dollars, it has now swollen to 133 millions of dollars. In the same period the exported manufactures of woollen goods, in defiance of Saxon, Prussian, Spanish, and American competition have advanced more than eight millions of dollars.—Fifty years since the imports into England of new silk were only 250,000 pounds in weight, they are now nearly 30 millions.—Fifty years since they exported only four millions of yards of linen goods, they now export forty millions.—Fifty years since their whole exports were only 66 millions of dollars, they are now 222 millions."

Our own history would show perhaps as great and honourable a change, but it is *still vastly inferior to theirs*, in proportion to our *comparative population.* Our exports of domestic productions not exceeding 55 millions, and theirs being 222 millions; ours being to theirs only as ¼; while our *population is to theirs* as 11 to 16 or ⅔.

It is important to us, and to all nations, to know from what cause, this rapid increase of British industry has been derived: no doubt from superior capital in the *first* place; from the employment of the lights of science in the *second*, but among the other causes, must be reckoned as not unimportant the encouragement given to individual skill and talent by their grand national society of arts and manufactures. That society has sedulously watched over the general interests; it has fostered every new invention; it has brought into public notice the retiring and modest inventor; it has recommended his discovery and has rewarded his skill not merely by its pecuniary aid, but by attracting public attention to *his merits.*

The same effect has been produced upon agriculture by similar measures. It is perfectly idle to attribute simply to *increased demand*, the rapid process, which that nation has made in the productions of its soil. It is of very little importance whether it is or is not admitted that *science* has done *much* for agriculture (though I believe it has effected more than is generally believed) but the attention to it, the exertions of those who have promoted it, not *for profit*, but from *patriotic* and *public motives*, have done incomparable good. It would be as absurd to deny, that the human intellect cannot when applied to agriculture effect important and valuable improvements, as it would be to contend, that it could not improve the *other* arts. Agriculture, to be sure, is not as susceptible of improvements by machinery, as its sister arts, but the range of its *objects* of cultivation may be indefinitely extended, and improvements may be made in the culture of *these new objects.* It is not generally known,

that the cabbage, and the carrot, and the Swedish turnip, and the beet and the most valuable varieties of the latter, the mangel wurtzel, and the yellow, and sugar beet, are altogether of modern introduction, so modern that our excellent ancestors had never heard of them—could not have heard of them because they did not exist.

I will not detain you on the subject of *fruits*, because it has, at present, but a limited interest. I am however much amused, when I hear one of our farmers who supply the Boston market with fruit, undervalue the services of the *gentlemen* farmers, when it is demonstrable that to their exertions they owe many of the good fruits, which they possess, and while they carefully watch *their* progress, and avail themselves of *all their improvements in the culture of them*.—This is perfectly natural, but it is highly proper that on public occasions, we should advert to the undoubted benefits, which science and superior capital has introduced.

Is there one farmer among those, whom I have the honour to address, who knows that clover is one of the trophies of agricultural science? that it was *utterly unknown* in England at the time of the emigration of our ancestors? I hope there are none, who are so ignorant as to believe that, the potato was a *native* production, or that it cost vast and continued efforts to overcome the prejudice of the farmers against it. Yet banish the potato, the result of commerce and science, and you would at once deprive Massachusetts of a plant, worth some millions of dollars annually, and if Ireland should be deprived of it, a famine would instantly ensue.

Shall we allude to the cotton plant? No—Our northern farmers *feel not* its importance *except indirectly* in the cheapness of the excellent cloth manufactured from it, in the general increase of wealth from its manufacture, in the building up of new towns in the interior, forming new and valuable markets for their products at enhanced prices, and with less labour and expense of transportation.

Yet you owe the *Cotton Plant* exclusively and entirely to intelligent men,—*book men*,—who were not practical farmers;—a plant which yields to this country a greater revenue than all its other productions of the sea and of the land.

We now come to some of the direct and undisputed benefits derived from this *particular* society.—Col. Humphreys introduced some Merino sheep. His situation as minister to the Court of Portugal enabled him, and he wisely and patriotically availed himself of the opportunity to introduce a few Merino sheep. This society, alive to the interests of agriculture, granted him their gold medal. It was not so much to him, the value of the present, as the evidence it afforded of the importance of the acquisition, thus enabling him to put a high price on his sheep. Col. Humphreys kept his sheep,—as he had a right to do—for his own *private* emolument. A few years afterwards Mr. Livingston, our minister to France, had credit enough with the Emperor to obtain some of the Merino race from the imperial flock of Rambouillet. He, too, as he had a *right to do*, turned his importation to profit, and the price of 3000 dollars for a single ram excited the attention of *our* Society, and, knowing, as we did, that they could be bought in Spain for 10 dollars, of the purest breed, we offered premiums of 100 dollars *each for rams and ewes*. They came in great numbers as we anticipated. There was a foolish rage in the *first* instance, perfectly absurd in itself, but always inevitable in such cases. It ended, just like the late absurd speculations in cotton, in disappointment and disaster, and the Merinos fell into a disrepute as irrational as had been the extravagant rise. But time and good sense, and experience, those sound counsellors which never deceive us, but which always settle human affairs on their true and solid foundation, soon raised the Merinos to their merited rank, and it may be now safely asserted, that never did any society more wisely and judiciously expend its money for the benefit of any country, than ours has done by granting a

medal to Col. Humphreys in the first instance, and finding that he and Mr. Livingston adopted the very fair and justifiable project of a *monopoly*, and a very *restricted* one, by offering premiums for *new importations* which it can be *proved* by our records induced the importation of many thousands.—Let us then enjoy a due credit for our exertions. We ask *no more*. It is a curious fact, worthy of notice in the history of agriculture, (and commerce and manufactures can exhibit many as curious) that the Merino sheep became in this country at one time so odious, so much of a *bye-word*, that those who had adventured in the speculations, were compelled to join in the *general laugh* at them, and to shelter themselves under the ground of an *epidemic illusion*.

Yet in the short space of seven years, we have not only seen the Merino races rise into favour, but we have seen sheep of that breed introduced from the cold and comfortless region of Saxony, and selling at prices which, it is alleged, have afforded the importers a profit of 12, or 15,000 dollars on a very few sheep. We ought not, however, to disguise or conceal the fact, that much of this extravagant demand has been the result of a system of *protecting* duties, which, whatever effect the eloquence of interested raisers of sheep may produce on public opinion and policy, is radically unsound.

Fifty years hence men will be, if not *astonished*, at least ashamed, that the science of political economy was so little understood in our country. They will be surprised that we should be willing to pay so much for articles of the first necessity, merely to advance and increase the profits of one thousandth part of our community—that we should consent to pay for our clothing 35 per cent. more than we ought to pay, or than it is worth, the whole of which constitutes the profit of one hundredth or one thousandth part of our population. But we are as yet in our infancy; and it is not extraordinary that we should adopt the erroneous doctrines

prevalent in Europe *one hundred years since*, and in some parts of Europe even now. The concentration of effort and exertion of opulent, intelligent persons interested in any particular branch of industry, must for a long period of time be an overmatch for the enlightened but disinterested advocates for an ENTIRE FREEDOM OF TRADE and of HUMAN INDUSTRY. It must not be inferred that we think lightly of the value of manufacturing industry, nor of its effects on our prosperity; but we would have its growth a natural one—healthy and vigorous—which, not depending on monopolising acts, will endure by its own native strength.—It will not be supposed that I am unfriendly to manufactures, in which the fortunes of those most dear to me, and a large portion of my own are engaged; but I wish that they should repose on a basis, much more secure and durable than *legislative* provisions, *subject to repeal*, and tending to an unnatural and morbid extension of them, much more ruinous to *small* adventurers, than to the larger ones.

We will now advert to another branch of the efforts of this Society, *to improve the breed of domestic animals*. It is, we all know, debatable ground. We shall not enter into the controversy; but we owe it to ourselves to defend the grounds on which we offered premiums for *imported* stock.

It was well known to every agricultural man, who was a reader, that Great Britain and France were not contented with the existing state of their horned cattle—that for fifty years last past they had set themselves seriously at work to *improve* them. It was as certainly true, that in *our* country *no such effort had been made*. Of course, it was to be *presumed* that these nations *had improved their races*, while ours had been, to say the least, stationary. It is admitted on *all* sides, that much may be done by selection of fine individuals, and by care in preserving the important races pure from contamination or intercourse with poorer ones. No such selection of our races has taken place to this hour, that I know of. It cannot be denied, that we in New Eng-

land have taken no pains whatever on this subject. If it should be admitted, that the fine natural pastures on the beautiful, fertile, and moist hills of Worcester, that paradise of New England for fine cattle, had kept up a race of cattle, vigorous, and nearly perfect in their forms, the same could not be affirmed of Bristol, or the southern counties, or of the northern part of Middlesex or Norfolk. In truth our race of *milch cows* was and is *generally* ordinary, and our *cattle at large* may be affirmed to be inferior to those of England,—of the Netherlands, and of Normandy. I can only say, that going to Europe with very little agricultural knowledge, I admit, in 1803, the first and deepest impression made on my mind of any differences in the agricultural state of those countries compared with our own, arose from the marked, the unquestionable superiority of their *horned* animals. Their proportions were better,—their size was generally superior—the bags of their cows were larger and better formed—the Show at Smithfield, a market like that of Brighton, exhibted finer animals for sale,—much finer,—on common market days, than Brighton, except rarely, *ever* exhibits. I speak of the *average* appearance, which is the only *fair* rule.

On my return I was struck with the difference, the inferior state of our cattle—the comparative amount of offal, when the animal was *fat*.

I should limit myself, as the first and principal advantage derived from foreign importation to this, that the care bestowed on the cross breed, is of itself a boon, equal to *all* the increased expense. We have been, we all know, utterly careless of our young stock. The introduction of a *new* breed produces of itself a greater degree of care. This is a good not easily estimated. The attention to *one* animal naturally leads to an increased attention to a promising one of *native* race, and so the whole mass are gradually improved. Is not this the way, the ordinary course, by

which all other improvements in human industry are produced?

If Mr. Slater had not introduced his cotton mill into Rhode Island some 30 years since, can any man say that there would have been at *this* day a cotton factory in New England? I do not mean to say that there might not—but I have no doubt that this establishment accelerated the introduction of them. The knowledge, that other nations possess superior modes of industry does not excite, or but *very slowly excites*, a disposition to copy the example. One successful effort at home does more in 8 years, than 50 years' success in another country. We are, it is true, imitative animals, but still we need to have the example before *our own eyes*. We apply these remarks which we believe to be sound, to agricultural improvements, and especially to the amelioration of our domestic animals. How long had we read of Saxony and Spanish sheep without ever *dreaming* of introducing them? Once introduced, they spread with a velocity which is astonishing. Grant, that the horned cattle imported are not in any respect superior to our own—(not that I believe it),—yet their introduction has given a value to all other stock of the same description, by inducing more care as to their treatment and improvement, and a general attention to the *subject*. If it *has not* produced this effect, it must be only because we are incorrigibly obstinate in persisting in *old* usages, in the neglect of selecting the finest individuals for breeding, and of sustaining and improving by generous food, those *which we do raise*.

It surely cannot be unimportant in a state, whose great staples must forever be, their beef, pork, and wool, to urge on *every* occasion, to press by *every* means, the amelioration of the races of the animals which yield us these staple productions. We may indeed fairly differ as to the *means best adapted* to the *end*, but as this must be a subject of some delicacy and difficulty, it would appear to us to be the

wisest and best course to give a free and unrestrained range to every sort of experiment, not the least important of which in my judgment, nay the *most important*, is to see, by actual trial, how far the European improvements in the breed of cattle, our staple production, are adapted to our culture.

If they *fail*, no lasting injury can be the consequence, because the opponents of imported stock contend, that the progress of change *is very slow*, and if *disadvantageous*, will of course be checked by individual interest, before any great evil should be effected. My own conviction is, that the experiment has been so far successful.

Having made these general remarks, which I am sensible have been extended to what, I fear, will be felt to be a tedious length, let us now advert to our present cattle show, and to those animals which fell under the particular and minute notice of the Committee of which I was chairman.

Such an exhibition of fat cattle has, so far as I know, never been seen at Brighton, and I believe in America. There were no less than thirteen animals, weighing from 1673 to 2319 pounds, and from 5 to 7 years of age. In every case but one, they had been inured to hard labour, and in every case, the *expense* of feed in fatting was *far less* than English writers give as the average course of fatting in England. *Operate as it may*, it is both *my duty and inclination* to state fairly and fully the results and the facts. The greater part of these animals had been taken off from labour about seven months. Their food had been generally what is called Cob Meal, that is the corn and cob of Indian corn ground together. Some interesting facts were stated by *one* farmer, which I deem it a duty to exhibit.

He tried his ox with pure Indian meal, and after a few days' trial, the animal refused it. He then tried the coarser food of Cob meal, which I have just defined, and he took to it greedily. This is a modern experiment, and may prove of great practical utility. A Shrewsbury farmer, I think by the name of Rice, was the first who communicated it to

our society, though it may have been in use *long before.* It is important however to know, that an animal may refuse a richer food and prefer a coarser one. I am not at all surprised at it. It is precisely in conformity with what we see every day around us. A sailor would pine on turkies and dung hill fowls as a constant food, and return with pleasure to his beef and pork, and peas soup.

There was another very interesting fact disclosed on this examination. There were three fine *five year* old steers of Joseph Easterbrooks, Esq. of Royalston, two of which had been worked hard from the age of 3 years, and the third had *never had a yoke around his neck.* The judges (and better judges there could scarcely be, than my associates) could perceive no sensible difference in the value of the worked and unworked cattle. Of the *same* age, owned by the *same* man, with the *same* treatment and *food* the unworked oxen were in no degree superior to those, which had been submitted to labour. Great Britain might learn a lesson from *this* example, if her farmers could have been present. It is also worthy of remark, that these five years old cattle weighed about a ton a-piece, and the *seven* years old cattle but a *trifle more.* I state these facts as being worthy of notice, since I deem one practical remark of far greater value than volumes of theory.

The Committee award the first premium for fat oxen to Joseph Easterbrooks, of Royalston, for his dark brown ox, weight 2104, 7 years old, 25 dollars.

The second premium for fat oxen, they award to John Temple for his silver nosed ox, 6 years old, weight 2178, 20 dollars.

The third premium to the same person, John Temple, for his other ox of the same yoke, 10 dollars.

I owe it to my colleagues, to whom I wholly deferred the decision in this case of fat cattle, to say, that their duty was one of peculiar difficulty and delicacy: The cattle were all so fine, so equal in their forms, proportions and

good qualities, that even such judges as Mr. *Winchester* and Mr. *Baker*, my associates, must have been, and they were embarrassed.

On this subject, I will take occasion to say, that our cattle are in fact heavier and larger in *my* opinion than the English cattle, taking them *on an average in both cases.*

The great distinction, which I should make from the experience of 6 years, at our cattle shows, would be this, that the *crosses* of the *imported* stock have *less* offal, *less unprofitable meat*, keep fat with *less food*, or rather keep *more* fat on the *same food* than our own races.

I know very well, that this opinion is questioned by very high authority, but my opportunities have not been few, serving for so many years on this committee, and I am constrained to say, and it is *my duty* to say it, as I *believe it*, that upon precisely the same food the improved races of Great Britain (as we see them *here*) not only have more profitable flesh, on parts of great value, but they will thrive faster on the same food than our native stock. Exceptions of course, every man of sense knows occur in all breeds; I know personally, that an animal, taken from its mother at a *week old*, treated *precisely as native stock* by its side was treated, has been *always fat*, while the others were lean. I touch not the question, for it is *but conjecture* whether, with our inferior and often careless treatment, they will not *degenerate*. *If* they *do*, and only *when* they do, we ought to consider them *no longer objects of attention.*

The competition for bulls we are sorry to say was this year smaller than we have ever known. We award

The first premium to Zephaniah Brown, of Charlton, for a bull out of Holderness, an imported animal, 30 dollars.

The second to William Gilmore, of Franklin, Norfolk county, to his bull also out of Holderness, 20 dollars.

The third to Hon. John Welles, for his bull of the Cœlebs race, 10 dollars.

The bull calves were also few in number, much less than usual, and we regret it.

The first premium we award to the Hon. Mr. Welles, for a bull calf from Admiral, ¼ Denton, 15 dollars.

The second to Jeremiah Hawes, of East Sudbury, for a bull calf of *native* breed, 10 dollars.

The third to Henry Craft for a bull out of Mr. George Lyman's beautiful imported bull, 5 dollars.

No. 2.

The Committee on all other Stock than Bulls and Fat Cattle—Consisting of Mess. J. Welles, Luke Fiske, and Thomas Williams—

REPORT, that they have seen with pleasure the general improvement of the Stock which has been successively of late exhibited at the Brighton Cattle Show. This has been the result of an increasing ardour in competition, honourable to those who act under its influence, and most beneficial to the community. If, (as might well be the case) many more of our good stock, with our household and other manufactures, were exhibited, an increasing interest might be given to this holiday, adding still more to its influence and utility. Enough, however, has been already shown, to convince those who look to these great sources of our national prosperity, that they will not be neglected by an intelligent people.

In the examination of Stock, the Committee began with Milch Cows, and after a careful comparison, were induced to award the *first premium* of $30 to *George H. Hardy* of Waltham. This Cow did not exceed the middle size,—was of native stock, 7 years old,—and for some months after calving, gave about 18 quarts of milk. For nearly 4 months she averaged 11¾ lbs. of butter a week. In July last she gave 46 pounds of milk; she now affords 32 pounds, and holds out over 3 quarts of milk to nearly the time of calving.

The Committee award the *second premium* of $20 to the *Rev. John White*, of Dedham. This Cow was of native stock and of middle size, and gave 12 pounds of butter for six weeks in succession. In one week 12 pounds 13 ounces was made from her milk. For 3 months she averaged 10¼ pounds of butter; in the best of the season over 18 quarts of milk. These cows were so alike and both excellent, that the Committee might well feel at a loss. The former was preferred, from holding out her milk for a rather longer period, and some other slight causes.

The Committee award the *third premium* of $15 to Nathan Pierce of Salem. This cow was of great product in milk, and had given by statement 3528 quarts of milk in a year, being an average of nearly 10 quarts a day. Her milk appeared rich, and well suited for the dairy, certificates of which were furnished from several who had used of it. But it was not sufficiently shown how far she was of value in this particular, which is most essential.

There were some other cows of great product, which might have competed, or been preferred even to those to whom the premiums have been awarded. But the representations offered, on which a judgment was to be formed, were too general. They were sufficient, however, to induce your Committee to infer that they probably were very superior animals.—There were several other milch cows offered for premium, some with calves in high order at their sides. But in these cases, though adding to the interest of the Show, your Committee found in many respects a want of those circumstances and of that precision which would be requisite in order to make them proper subjects of consideration. The cow exhibited by the *Rev. Dr. Foster*, of Brighton, called *Flora*, was a very fine one, giving nearly 18 quarts a day of rich milk.—The pens contained several other fine cows for exhibition only.

Of the Heifers in Milk, your Committee were of opinion that the first premium of $15 should be awarded to *Ebene-*

zer Niles, of Boston, for a very fine heifer of the hornless or Galloway breed, the sire Cœlebs. This animal would have received, we are authorized to say, the first premium last year for heifers, but she was by mistake inserted for exhibition only. Her excellence now is better established.

The second premium of $10 for heifers in milk the Committee award to Josiah Seaverns, of Roxbury, for his heifer from a native cow. Her sire the imported Alderney bull, given to the Society by John Hubbard, Esq. now in the possession of Mr. Parsons.

These heifers were of strong promise.

The premiums for heifers the Committee award as follows:

To Benjamin Harrington, of Princeton, for his heifer 18 months old, the first premium of $12.—The dam native, the sire Holderness.

To Wm. H. Prentice, of Boston, for his twins about 18 months old, from a fine native cow, $10—the sire Cœlebs. The second for his red heifer, $10. The third for his red roan heifer, $8.

To John Prince, Esq. for his heifer from Denton, about 18 months old. The cow native—the 4th premium, $6.

The Committee, before they pass to other stock, may be indulged in the remark, that to those who favour the improvement of our own native stock upon a well governed selection from them only, the exhibition this day of milch cows must have been gratifying.

On the other hand, the heifers in milk and the other young stock afford room for the most ardent anticipation of great and increasing improvements from the imported stocks. Much is doubtless to be effected in both modes. The able and interesting discussion before the public on this subject cannot but awaken and excite to more multiplied courses of experience, and thus lead us to more satisfactory and certain results.

As to sheep, your committee made as careful an exami-

nation of the Merinos from Saxony and elsewhere, as was in their power; and they award

The 1st premium for a merino ram of the Saxony breed to Joseph Barrett, of Concord, $15.

The second premium to the same gentleman for his merino ram $10.

For a flock of merino ewes, the first premium to the said Joseph Barrett $20.

The 2d premium for do. to George M. Barrett, of Concord, $10.

There was exhibited a fine specimen of long woolled sheep by Major Jaques.

Mr. Shepherd of Northampton also exhibited a beautiful pair of twin lambs, male and female, of the improved Leicestershire breed. As these were not imported, but brought from a neighbouring state, and there bred, your Committee were reluctantly compelled to consider them as not entitled to premiums.

Of Swine, the exhibition was of a very improved character. The pens were crowded with them. A breed of hogs with small bones and subject to little waste, quiet and disposed to fatten, and yet of great weight, were found to have taken place of the long, lank, coarse, greedy and insatiable animal, with which our country has been infested.

The Committee award for the best boar to Silas Dudley, of Sutton,

The 1st premium $12.

The 2d do. to George M. Robbins $8.

The 3d do. to John Parkman of Brighton $5.

The Committee award

For the best sow to Capt. John Mackay $12.

For the next best to Silas Dudley, of Sutton, $8.

To Moses Bright, of Watertown, the 3d do. $5.

For the best store pigs to Capt. John Mackay, of Weston, the 1st premium $10.

The 2d to Jonas Cutter, of Weston, $5.

Of the stock presented for exhibition the Committee noticed a beautiful cow of the Hon. William Gray.

There were several heifers of Mr. Parsons full and part blooded, which were deservedly admired.

Of animals not strictly within the authority of the Committee, they will be excused for noticing as adding to the show:—The beautiful *mare* and horse colt, generously presented to the Society by Admiral Sir Isaac Coffin.

A blood mare, with a mule by her side, was exhibited by S. W. Pomeroy, Esq.

A fine mare colt was also exhibited by Major Talbot, of Dedham.

The Committee were gratified to perceive a general improvement in the stock offered for inspection at the Brighton Cattle Show; and they think the community has much to expect from efforts so well guided.

All of which is submitted.

Per order, JOHN WELLES, Chairman.

No. 3.

The Committee on the Ploughing Match of two yoke of oxen,—consisting of John Prince, Nathan Adams, of Medford, and Daniel Adams 3d. of Newbury—

REPORT—that six teams only appeared to contend—(eleven having previously retired)—viz.

No. 1. Silas Dudley, of Sutton—plough made by Warren, of Dedham—work done in 31 minutes.

2. Samuel Sibley, of Sutton, plough by Hall Sutton—work done in 35 minutes 30 seconds.

3. Sherman Barrett, of Concord, plough of cast iron by *Tice*—work done in 35 minutes.

4. Joseph Curtis, of Roxbury, plough by Warren of Dedham—work done in 35 minutes.

5. Aaron D. Williams, Roxbury, plough by Warren of Dedham—work done in 39 minutes.

6. Stedman Williams, Roxbury, plough by Warren, of Dedham—work done in 33 minutes.

The lots were exactly one-eighth of an acre—the land

only two years since laid down, and very thin sward, that the Committee apprehended handsome work could not be effected—they are gratified however in stating that by the skill of the ploughmen and drivers, and the great docility of the cattle, the work was extremely well performed.

They were very particular in directing that the cattle should not be hurried, and forty minutes were allowed for the task. They have been unanimous in deciding the premiums, and hope the unsuccessful competitors will not be deterred from trying another season.

They award the first premium

To Sherman Barrett, of Concord	$15	
Himself as ploughman	8	
Prescott Barrett, driver	4	
		—$27
2d. To Aaron Davis Williams	10	
Ebenezer Lord, ploughman	5	
David How, Driver	3	
		—18
3d. To Samuel Sibley, of Sutton	6	
do. as ploughman	3	
Benjamin Woodbury, driver	2	
		—11

It is wished by the Committee to remark that the first premium was gained by a *cast iron* plough—taking into consideration the great saving in *repairs* for a length of time, they cannot but take pleasure in recommending cast iron ploughs to their agricultural brothers.

(Signed by) JOHN PRINCE,
NATHAN ADAMS,
DANIEL ADAMS, 3d.

Brighton, 20th October, 1825.

The Committee on the Ploughing Match [with one yoke of Oxen,] consisting of E. Hersy Derby, Chairman, Col. Josiah Titcomb, and Ebenezer Heath, Esq.

REPORT, The conditions of the match were, that the lots

should be one-eighth of an acre each, and the ploughmen arranged according to the date of their entry.

The ploughing was to be five inches deep, and the furrow slice to be not more than ten inches wide.

The excellency of the work, and economy of labour, and not the rapidity, was to be the criterion in awarding the premium, regard being also had to the state in which the cattle came from their work, and to their general appearance.

40 minutes were allowed for the performance of the task.

There were nine competitors started, all with a driver except two.

The first lot was finished in 24 minutes, and the last in 35 do.

It gave the Committee great pleasure to observe the excellence of the teams, and the good order, and superior management of the ploughmen and drivers.

The ploughs were all good, two of them cast iron, the others of wood.

With great satisfaction the Committee state, that, considering the unsuitableness of the ground for an exhibition of this kind, there being a number of large rocks in the lots, and the same being badly swarded, they have never at any of our shows, seen so much good work. All of it being so excellent, they have found it extremely difficult to decide to whom they should award the premiums.

After a great deal of consultation they have decided to award to Abiel H. Wheeler, of Concord, the first premium of fifteen dollars; to the ploughman, eight dollars, and to the driver, four dollars.

To Perley Tapley, of Danvers, the second premium of ten dollars, to the same as ploughman, five dollars, and to the same as driver, having no other driver, three dollars.

To Seth Hastings, of Mendon, the third premium of six

dollars, to the ploughman, three dollars, to the same as driver, having no other driver, two dollars.

E. HERSY DERBY,
JOSIAH TITCOMB,
EBENEZER HEATH.

Brighton, 20th October, 1825.

No. 4.

The Committee on Inventions—

REPORT—that the entries under this head were uncommonly few.

Two yokes were offered for premium, the one by Leonard Dodge, of Sutton, the other by Moses Bellows, of Shrewsbury. Both of fine workmanship, and very creditable to the mechanics who made them, but, as far as the Committee could perceive, neither possessed qualities so different from other yokes as entitled them to any premium as inventions; and no persons were in attendance to explain the peculiar advantages resulting from the particular difference perceptible between these and common yokes.

A plough was also entered for premium by Mr. Stephen R. Phelps, of Marlborough. This plough appears to be a patented invention, originally made in New Jersey. The great peculiarity of this plough consists in making the nose or point of the plough independent of the share, and connecting it with a bar of steel, which can be moved forward by means of screws, as the nose or point wears, and being inverted causes the action of the plough to counteract the effect of the wearing, and hence keep itself in working order better than the ordinary ploughs.—From this circumstance, this plough is denominated the self-sharpening plough; and the Committee think that the invention, if it have the effect asserted, and which from its construction seems likely to be the case, must be an improvement of that important implement of agriculture.

Your Committee, however, had no evidence of the in-

struments having been used and approved by practical farmers; and therefore do not deem it within their authority to grant a premium.

Mr. J. P. Miriam, of Concord, also presented for premium a hassock cutter and plough cutter.

Both of them your committee cannot doubt to be useful in the particular soils for which they are constructed. But no certificates of use and approbation by practical farmers attended either, and besides, neither instrument seemed very materially to differ from a species of instrument not uncommon in England, and which have been used in this country. At least the difference was not such as to entitle either of them to a premium under the head of inventions.

Robert S. Babcock, of Roxbury, presented for premium several hay forks, of a very excellent and improved quality, and form, and, in the opinion of your Committee highly worthy of patronage by intelligent agriculturists. They are of steel, of an excellent quality. The tines round, and in their shape and bend, and balancing on their handles superior to any hay forks your Committee have seen. They are connected with their handles by a long ferule, and inserted into them with great strength and security.

One great advantage they possess over the common patented steel fork, is that they are more easily repaired, if broken; whereas the former so far as we have had experience or been informed, when broken are in general considered as lost.

John Prince, Esq. of Jamaica plains, who has used these forks for two or three years, expressed his entire acquiescence in all the above particulars, considering one of them worth any two forks of any other description he had ever owned.

Considering the importance of this instrument, and the excellence of the improvement, your Committee award a premium to Mr. Babcock of ten dollars.

Mr. Pope's threshing machine, which on a former occa-

sion received a premium, was presented for exhibition, accompanied by certificates of its success and usefulness, which were both gratifying and encouraging.

A very curious machine for the purpose of making mortices, was presented for exhibition by ——— which your Committee can have no question will be a very useful instrument, though it does not come within the sphere of the society's premiums.

Messrs. Haliday & Ewing, of Boston, presented for exhibition blocks for printing calicoes, of an excellent workmanship; and executed in a style which cannot fail to do them great credit, and to ensure them encouragement in those important manufactures towards which their ingenuity is directed.

All which is respectfully submitted by

JOSIAH QUINCY.

October 19, 1825.

No. 5.

The Committee on Manufactures, consisting of R. Sullivan, Samuel Appleton, George Searle, and John W. Boott—

ADJUDGE, for Broadcloth—

To Messrs. Slater and Howard, of Dudley, 1st prem. $20
To the Walcott Wollen Manu. Comp. 2d prem. 15

For Cassimere,

To Messrs. Slater & Howard, the 1st premium 12

For Woollen Cloth and Household Manufacture,

To Nathan Barrett, jr. of Concord, the 1st premium 12
To Ephraim Fuller, of Lancaster, the 2d premium 8

For Flannel,

To Mrs. Noah Strong of Norwich, the 2d premium 7

For Carpeting,

To Eliza Warren, of New Braintree, the 1st premium 15
To Sybil Wilcox, of New Braintree, the 2d premium 7

For Stair Carpeting,

To G. Delano of New Braintree, the 1st premium 10

For Blankets,

To Betsey Delano, of New Braintree, the 1st premium 6

To Mrs. John Hunter, of New Braintree, 2d premium 4

For Diaper,

To Eliza Warren, of New Braintree, the 2d premium 5

For Linen Sheeting,

To the Mrs. Leonards, of Sturbridge, 1st prem. 8

To Sarah Wilcox, of New Braintree, 2d prem. 4

For Sewing Silk,

To Emily Fitch, of Hopkinton, the 1st premium 5

The committee award a gratuity to,

Mary Simonds, of Dorchester, for a bed quilt 3

Lucy H. Brooks, of Lincoln, for a counterpane 3

Sarah A. Hughton, of Brighton, for a patch quilt 2

Mrs. Gleason, of New Braintree, for large coverlets 3

Mary B. Temple, of West Boylston, for a counterpane 2

Miss C. Paige, of Newburyport, for a counterpane 3

Mrs. Davis, of Boston, for a rug 2

Sylvia Harding, of Boston—Jane Coburn, of Dracut—Susan Thayer, of Natick—Mary Newell, of Watertown—Eliza Williams, of Deerfield—and Mrs. S. Bott, of Salem, for hearth rugs of good quality, each 1

Hannah Eaton, of Dedham, for a man's hat made of the palm leaf, more durable than the common straw hat 2

Jane Riley, of Boston, for fine linen thread 1

Elizabeth Hapgood for straw hats of rye straw and hat from spear grass 3

Nancy Goodwin, of Middleborough, for a grass bonnet and netting fringe 1

W. Davenport, of Concord, for various and beautiful samples of silk buttons 4

Sally Howe, of Marlboro', for a specimen of bags woven without seam in a common loom 2

Abigail Kilburn, of Lunenburgh, for a very fine straw bonnet 3

Elizabeth W. Childs, aged 12 years, for a lace veil 1

Columbian Manufacturing Company for a specimen of straw bonnets of fine quality 3

Abigail Sadler, of Hopkinton, for a fine straw bonnet 3

Beautiful specimens of fine needle work were noticed by the Committee.

A veil and cape by the Misses Rider, of Boston.

Lace veils by Abby Harris, of Boston.

Lace veils by Maria D. Moore, of Newton.

A lace veil by Lucy Ann Howe, of Hopkinton.

Fancy Baskets by Catherine Flagg, and Mrs. P. E. Converse, of Woburn.

An imitation India dress by Miss J. G. Smith, of Boston.

A thread lace veil by Evelina Penniman, of Boston.

Specimen of knit work by Miss M. Starbuck, of Nantucket.

A lace veil by Miss S. S. Baxter, of Boston.

A lace veil by Sarah B. Steadman, of Boston.

A specimen of work by Sarah S. Savage, of Lancaster.

Lace veils, lace and fine work by Lucy Cotting—Dorcas C. Fay—Merian S. Hayden—Maria S. Rogers—Merian L. Rogers—Hester Billings—and Hannah M. Johnson, all of Boston.

The object of giving gratuities in money being to encourage manufactures of more general utility, as well as to reward ingenuity and household industry, the Committee fulfil their duty in mentioning the names of ladies who have embellished the exhibition with ornamental works of taste.

Three pairs of shoes presented by Cushman Bassett, of Boston, were of first rate workmanship.

A beautiful specimen of sewing silk, with a reel of raw silk, were exhibited by Mrs. Harris, of Dorchester.

Mrs. George Adams, of Newbury, presented a piece of worsted plaid, made from the wool of the long wool Netherlands sheep, given to the Society by Thomas H. Perkins, Esq. It was considered a good imitation of Scotch plaid, and a new manufacture in this country.

The exhibition was enriched by samples of foolscap and

letter paper of excellent quality, presented by Mr. Andrew J. Allen, and by T. G. Fessenden, Esq. from the mill of Holbrook & Fessenden, Brattleboro', Vt.

Four pieces of flannel were sent by the Amesbury Flannel Manufacturing Company—white and coloured. The Committee did not hesitate to pronounce them equal in all respects to the best English flannels. The Committee were informed that a discovery has been made recently at this Factory, by which the red colour from madder is freed from the yellow tinge common in red flannels.

Seven pieces of printed silk handkerchiefs were handsome specimens of printing, and the colours brilliant and in good taste.

A piece of undressed flannel was presented by Moses Learned, of Palmer, with samples of the wool of his flock. The flannel being in an unfinished state, the Committee could not consider it an object of premium. The thread was very fine and the fabric good. Mr. Learned has practised clothing his sheep three years.—A cloth of cotton or coarse canvass is put on immediately after shearing, and kept on until the next shearing. The last season he blanketed, as he terms it, 175 sheep. He believes that the animal thrives better for this protection, and that the advantage from keeping the wool in a cleaner state, and having the pile soft and good to the extremities, more than pays the expense of 16 cents per head,—the estimated cost of the clothing.

Samples of writing and drawing pencils were offered by Messrs. Melvin & Blood, of Concord, accompanied by certificates stating that these pencils have the essential qualities of a good article, being both tough and soft, and are durable when cut to a long and slender point.

The Roxbury Colour and Paint Manufacturing Company, presented by Joseph R. Newell, their Agent, several samples of brilliant colours, of their manufacture. Their

establishment is the first of the kind within the state, and is said to meet with the most encouraging success.

RICHARD SULLIVAN,
SAMUEL APPLETON,
GEORGE SEARLE,
JOHN W. BOOTT.

No. 6.

The Committee on Agricultural Experiments, to whom was also committed the inspection of sundry articles of Manufacture, for which premiums were offered,

REPORT, That seven parcels of cheese, of more than one year old, and nineteen parcels of new cheese, were offered for the Society's premiums; with the exception of one parcel of old and one parcel of new cheese, all of it was from the town of New Braintree, in the county of Worcester. The new cheese is superior in flavor and richness, to that offered the last year. Of the old cheese, that from the dairy of Mr. Benjamin C. Perkins, of Becket, in the county of Berkshire, was considered by your Committee to be the best; and they award to him the premium of ten dollars. Your Committee could not, on thorough examination, find any parcel of old cheese which in their judgment was sufficiently good to be entitled to the second premium; they are aware that great care and attention is required to preserve cheese for any considerable length of time uninjured in its flavour; and they are not unmindful that the past season, from the extreme heat of the weather, has been unfavorable to the preservation of cheese; still they are of the opinion that the interest of the farmer would be greatly subserved by having a proper deposite for his cheese, in which the temperature of the air should vary as little as possible through the year.

Eleven parcels of butter were entered for premium, none of it such as your Committee deemed to be of the very first quality; some of it being too highly charged with salt;

and from several of the parcels the buttermilk was not sufficiently expressed; that from the dairy of the Rev. Lemuel Capen, of South Boston, was considered to be the best; and your Committee recommend that the premium of fifteen dollars be paid to him; the premium of ten dollars, to Mr. Michael Crosby, of Bedford, in the county of Middlesex, for the next best; the premium of seven dollars, to Mr. Luther Chamberlain, of Westborough, in the county of Worcester, for the next best; and the premium of five dollars to Mr. Jacob Dean, of Mansfield, in the county of Bristol, for the next best.

Ten samples of currant wine were entered for premium, most of it superior to any offered the last season; and with two or three years' additional age, would fall little short of the best light wines of Europe; the red wine made by John Prince, Esq. of Roxbury, was considered to be the best; and is entitled to the premium of ten dollars; the white wine made by Mr. Kenrick, of Newton, the next best; and is entitled to the premium of five dollars.

Four barrels of cider were entered for premium; none of which was deemed to be of the first quality; that made by Col. Daniel Leland, of Sherburne, in the county of Middlesex, was adjudged to be the best; and is entitled to the Society's second premium, being $10. Your Committee cannot refrain from offering it as their opinion, that little or no improvement has for several years past taken place in the making of cider; a liquor the use of which would be much increased, was more attention observed in manufacturing it; in such case it would without doubt be, to a very considerable extent, substituted for ardent spirits; the great consumption of which in this country, is exceedingly to be deprecated—sufficient attention is seldom paid to cleansing the casks into which the cider is to be put.

Several hives of honey were entered for premium; that offered by Mr. Ebenezer Fitch, of Sterling, in the county of Worcester, was not considered to be of the very first

quality; but having proved to the satisfaction of your Committee, that he had taken up the present season on his own farm, 266 pounds of honey, they recommend that the premium of $10 be paid to him. Mr. Ebenezer Withington, of Dorchester, took up the present season, on his farm, 70 pounds of honey of good quality, "made by one hive of bees, in forty-one days." Mr. Samuel Brigham, of Southborough, exhibited a glass hive, excellently well constructed, and containing a large quantity of honey in the comb, the bees being still alive; these industrious manufacturers will keep possession of the premises until the spring, when they will resume their labours. Mr. Brigham took up on his farm the present season 180 pounds of honey.

Four cases, containing cannisters of mustard, manufactured and exhibited by Mr. John P. Webber, of Beverly, in the county of Essex, packed in a very neat manner for transportation; on trial it was found to be of an excellent quality, not inferior in the opinion of your Committee to the best imported Durham mustard.

THOMAS L. WINTHROP,
ISRAEL THORNDIKE,
WILLIAM PRESCOTT,
BENJAMIN GUILD.

The further claims for premiums on agricultural experiments will not be decided upon until the Trustees' meeting in December next, affording time for the competitors to exhibit the evidence required—soon thereafter the Committee will make an additional report.

No. 7.

The undersigned, a Committee appointed to test the merits of the Working Cattle, and award the different premiums, have attended the duty assigned them, and

REPORT as follows, viz. Fourteen yoke of cattle appeared on the ground, and had been regularly entered. Several

persons who had entered their cattle were prevented attending in consequence of sickness in their families. One yoke was rejected, having received one of the premiums last year; the cattle at that time were three years old. Trial was made on the ground used several years past for that purpose. The waggons with their contents of stones weighed 5000 pounds, the weight drawn by each yoke of cattle. Your committee, after a careful trial, and as they hope discriminating correctly, award the following premiums, viz.

To John Scammel, of Bellingham, the 1st premium	$25
Perley Tapley, of Sutton, the 2d premium	20
Benjamin Woodbury, of Sutton, the 3d premium	15
Royal Marble, of Sutton, the 4th premium	12
Samuel Sibley, of Sutton, the 5th premium	8

Your committee considered the cattle as superior to any exhibited at any former cattle show in this place; but in training, particularly in backing with the load, they were sorry to observe a great deficiency.

All which is respectfully submitted by

GORHAM PARSONS,
SAMUEL G. DERBY,
ELIJAH PERRY.

No. 8.

AGRICULTURAL REPORT.

The Committee on Agricultural Experiments, recommend that the Trustees authorize the Treasurer of the Society to pay premiums to the following persons, in addition to those named in their report of the 20th of October last, to wit:—

To Messrs. Tristram and Henry Little, of Newbury, in the county of Essex, twenty dollars, for having raised the greatest quantity of Mangel Wurtzel, being 924 bushels on one acre. A description of their culture is as follows—"Upon a clay soil, the most stubborn and sterile that we

think of tilling, the said lot has lain down to grass since the year 1812, until the summer of 1823, when it was ploughed, and planted with potatoes, and would not have been ploughed then but to destroy the white weed with which it is infested; the soil on the most part of the lot is so thin that in ordinary cases it breaks and cracks; the other part of the lot is more fit for the plough; this will show that the Mangel Wurtzel root will thrive on a clay, though perhaps not to that size which it will do on a more loamy soil. In 1824 this piece of land was cultivated with potatoes, and manured in the hill with about 10 ox cart loads of good manure to the acre; and yielded about 100 bushels. In April, 1825, the land was twice ploughed, one plough following the other, which threw it up in ridges about one rod and a half wide, and wide furrows were left to carry off the superfluous moisture. The ridges made smooth with a harrow, and furrows opened on the ridges about 2½ feet apart, and 10 ox cart loads of compost manure were put in the furrows, which was covered with a double mould-board plough; they were sowed and cultivated similar to the statement made in page 245, Vol. VIII. of the Massachusetts Agricultural Repository; and harvested between the 1st and 11th of November; the produce was 23 loads and 16 bushels; 2 average loads were weighed, the weigher's certificate will show the weight of the crop.

Messrs. T. and H. Little are also entitled to the Society's premium of twenty dollars, for having raised the greatest quantity of barley, being 51½ bushels on an acre; "the soil is a clay loam, in 1824 was planted with potatoes and manured with about 30 ox cart loads of manure to the acre, the manure was principally marsh mud, put in the drill, and something like 200 bushels were obtained. In 1825, April 23d, it was ploughed, and 2½ bushels of barley were sowed on the same, 4 loads of dirt or dust drawn from under the barn were spread on one half of the piece, on the other part one half load of leached ashes were spread,

which half load, thin as the dressing was, we think was as good as the dressing on the other part—it was harvested on the 27th of July, threshed as soon as convenient; and the aggregate was 51½ bushels."

To Joseph Little, Esq. of Newbury, the premium of twenty dollars, for having raised the greatest quantity of common English turnips on one acre, being 814 bushels; "the soil, says Mr. Little, is what would be generally clayey loam; it had been 7 years to grass, and so long without any manure that it produced short of one half a ton of hay when it was taken off the last of June;—the first of July it was ploughed and harrowed well, after which it was furrowed at a distance of nearly 3 feet, and 25 ox cart loads of compost manure strewed along the furrows, the compost was made of 13 loads of strong earth, taken from pond holes and sunken places, and 6 loads from under the beds of the cattle in the barn; and the same number of loads from the vaults of privy houses; which was twice or thrice thrown over for the purpose of equalizing the whole as to strength; the manure was then covered with a double mould-board plough, the seed was sown with a machine made for the purpose, one row on each ridge; the quantity of seed was nearly 4 pounds, perhaps half that quantity would have been sufficient; the ridges were rolled over with a hand roller; when the turnips were of some bigness they were thinned by hand at a distance of about 8 inches, and afterwards were hoed once only; but the weeds were pulled out by hand; the crop was harvested the 1st of November, by myself and boy, and my hired man by the name of Kinnison, whose certificate is enclosed; there were by accurate measurement 814 bushels. The entire expense of ploughing, harrowing, getting the seed into the ground, including $25 for the manure, was fifty-three dollars."

To Payson Williams, Esq. of Fitchburgh, for having raised the greatest quantity of spring wheat on one acre, being 37 bushels, the premium of $20; the culture of his crop as

follows: "After taking off a crop of potatoes (500 bushels) raised in 1824, and about the setting in of winter, the field was thrown into ridges by alternate back furrows; I had two ends to answer by this furrowing: the field being a slightly inclined plane, pitching to the east, would drain sooner the following spring without danger of washing; and, secondly, to learn if the family of grubs would stand our hard winters in the open air. About the middle of April I split the ridges, and when sufficiently warm and dry, ploughed the other way deep and fine—sowed 3 bushels of Gilman wheat, well limed, 1 bushel of Herds Grass and Red Top, and 4 pounds of Red Clover seed—harrowed this in across the furrow; at this time the soil was warm and finely pulverized, except several rods at the south end of the lot, which was rather moist; the roller was now passed over the field. The 1-4th part of the field, the most moist, was again ploughed and harrowed; this part of the field, at harvest, showed large straw, but less amount of ear or head than that left under the roller. I mention the result of this experiment the more readily, as I had previously been much averse to the use of the roller at the time of sowing, but am now of the opinion, that if the earth be light and warm at sowing, the roller may be used to advantage, if the land be not too rocky, inasmuch as all small stones may be put out of the way of the scythe; the crop of wheat probably enduring the drought better. When the wheat plants were about 4 inches high, I sowed on them 4 barrels of strong wood ashes; whether the ashes had any effect to check the worm or maggot which had usually attacked my wheat at the root, I know not; but will state that no such attack was suffered the present season. The wheat was cradled the 27th of July; on the 28th and 29th it was bound up—the number of sheaves being about 800, and carted to the barn.—Sept. 6th the threshing was finished, the crop being 37 bushels and 4 quarts of excellent wheat so pure from the mixture of other grain, that I think

I may hazard the assertion that not 100 kernels of any other grain can be found in the whole product. I weighed one bushel and found it to be 65 pounds; the superfine flour from the same being 47 pounds, with several pounds of middlings. The straw when housed being remarkably light, I consider equal to one ton of good hay. You will perceive, gentlemen, that my expenses on crops are generally much beyond my brethren of the sod; yet I do affirm that a wheat crop can be profitably grown in old Massachusetts, if our lands be properly prepared. The value of the crop $65,50—entire expense of raising the same $32,92.

Mr. Williams is also entitled to the society's premium of $20 for having raised the greatest quantity of potatoes, being 609½ bushels on one acre: "the field is near the top of a gentle swell or hill inclining to the south and east, the soil a deep yellow loam, bedded on a stratum of blue gravel, the hardness of a well beaten road, the field 7 years ago produced an amount sufficient to draw the society's premium for the greatest crop of potatoes,—the year following the society's premium for the greatest quantity of spring, Gilman wheat; since that period I have taken from it from one to two tons of hay annually. In the fall of 1824, the sward was turned under; the following spring after spreading on 43 loads of unfermented manure from sheep and neat cattle, it was cross ploughed, harrowed down, and furrowed 3 feet distant, and one large potato placed at two feet distance the other way, and lightly covered; the planting was finished the middle of May; weeding finished the 1st of June; the 2d and last hoeing the last of June; after which the weeds were pulled as occasion required, 'till the tops of the potatoes covered the ground. The excessive drought the past summer was undoubtedly an injury to the crop, but not to so great a degree as to other fields planted in the old fashion way 4 feet asunder, as at the most critical time my vines covered the ground, thereby interposing a partial shield to the scorching rays of an almost killing sun. From

repeated experiments I am confirmed in the belief that in our mode of culture 3 feet by 2 feet is as good, and probably the best distance for potatoes. The kind of seed used the present season were in part the Rio de la Plata or Reds, and part Pennsylvania Blues ; their produce side by side, was nearly equal. The quantity of seed used was 30 bushels of the finest potatoes of the preceding crop ; small unripe seed never should be planted ; the crop was harvested between the 23d and 29th of October, the amount 609½ bushels, many of which weighed 2lbs. each. Before closing this statement, I will give it as my opinion, that had I placed the manure in the hills, instead of spreading it on and ploughing in the same, I should not have had 500 bushels ; and as my further belief, that had there been no drought, I should have had over 700 bushels from the acre : The value of the crop $152, 38, the entire expense of breaking up the field, of the manure, and spreading on the same, hoeing, harrowing, and harvesting the crop, $54, 33, leaving a profit of $97, 55."

To Mr. Leonard Hill, of East Bridgewater, in the county of Plymouth, the premium of $20 for having raised the greatest quantity of flax on half an acre, being 310 lbs. Mr. Hill's description of his culture is as follows : "In Sept. 1823, I broke up a piece of ground, being a part of my farm which before had produced some small crops of hay ; it is a level field, and the soil of a clay loam ; there was by estimation about half an acre in the piece ; in the spring of 1824 it was twice ploughed, and manured with 25 cart loads of barn manure, and planted with Indian corn, producing about 25 bushels. In April last it was again ploughed, harrowed, and cross ploughed ; previous to the last ploughing 24 cart loads of good manure were spread upon it, and then again 15 bushels of dry ashes were scattered over it; afterwards it was twice harrowed ; the 2nd day of May I sowed 5 pecks of clean flax seed over the piece, and again harrowed it over with a brush harrow ; about

the 25th of July the flax was pulled and housed, and as soon as dry the seed was beaten off, cleaned, measured, amounting to 7½ bushels; the flax was spread about the middle of September, and rotted, and then housed again; in the month of November it was dressed out clean for market, and weighed; the whole quantity taken from 92 rods, was 357 lbs., the expense of cultivation, dressing, &c. was $23, 50 cents."

To the Rev. Morrill Allen, of Pembroke, in the county of Plymouth, $30, for his experiment to prove the best season and mode of laying down lands to grass. Mr. Allen makes the following statement: "Several disappointments in my expectation of a crop of grass after sowing the seed in the spring with grain, induced me as early as the year 1807 to try the effects of autumnal sowing; my first experiment was made on about 16 rods of land, a part of which was sowed in the month of October with rye and herds-grass, and the residue with herds-grass seed alone; the cold weather did not commence very early in that year, and both the rye and grass had considerably extended their roots before winter. In the following summer at the time of reaping, the grass had grown so tall among the rye, that much of it was cut with the sickle; but it appeared less healthy and vigorous than the grass which was sowed alone; this produced nearly a full crop the first year, and endured unusually well afterwards. The next year the crop where the rye had been raised, appeared to me to be considerably better than usual after spring sowing with grain, but less than on the other part; the result of this experiment encouraged me to sow grass seed in the fall, and without grain. In several successive years I ploughed and sowed my fields after Indian harvest; the crops were generally much more abundant than spring sowing; but in some instances when the autumn proved cold, the first crop was imperfect, and intermixed with some weeds; I supposed earlier sowing would be more certainly successful;

and in 1820, about an acre and a quarter of land, which had been naked fallowed, was sowed with herds-grass and red clover, between the first and 20th of September. In 1821, the herds-grass was ripe for cutting; at the usual season 15th of July, it was unusually tall, but not so thick set as in subsequent years; very little of the clover appeared the first year; it increased in the 2nd and 3rd years; the usual order seemed to be exactly reversed in this instance. When clover and herds-grass are sowed with spring grain, the first crop is chiefly clover; afterwards there is a greater proportion of herds-grass; this circumstance has lead many farmers to the conclusion that it requires more time to establish the roots of herds-grass in the earth, and prepare them to produce a full crop, than it does the roots of clover; every experiment I have made has tended to prove this a wrong conclusion, and that herds-grass naturally comes forward earlier than clover, the reason why the appearance has so often been otherwise, probably is the obstruction produced by the grain crop on the growth of the grass; the clover being a tap rooted plant, is not so much obstructed as the herds-grass; and drawing some of its nourishment from a greater depth, it soon ascends the injury; unobstructed by grain, I have observed that herds-grass always takes the lead of clover in its growth. In the spring of 1823, I ploughed about 3 acres of land on which Indian corn grew the preceding year; nearly half the field was a cold clayey soil, and the residue a gravelly knoll; it was sowed the 1st of May with oats, herds-grass, and clover seed; another field of 3 acres, the soil clayey, and apparently of the same quality with the low part of the other field, was naked fallowed; it was ploughed 4 or 5 times, and sowed with herds-grass and clover, the 1st of September; the comparison could properly be made only between the low part of the first field, and this, where there was no perceivable difference in the character of the soils; in 1824 the quantity of hay per acre

on the land sowed in the fall was at least double to that on the land sowed in the spring, and with grain; the past season the difference was not as great, yet very observable. The same experiment was repeated in 1824 on about four acres of light sandy soil; the seed on the fallowed land in that year was sowed the last of August; the season was uncommonly dry; and where oats were sowed scarcely any herds-grass appeared the past season; but that part sowed with grass seed alone produced a good crop for light soil, and at this time there appears to be on it a sufficient number of grass plants, while the other part of the field looks like exhausted land. From the results of these several experiments I am led to believe the best time to commit grass seed to the earth, is from the 15th of August to the 15th of September; this time seems to accord with the intentions of nature, it is the season of ripeness in the seed when it spontaneously falls on the ground; grass seed which is sowed in the last of summer, or the beginning of autumn, is rarely if ever obstructed in its early growth by drought, which often proves destructive to young grass in the summer months; it gets firm hold of the ground before winter, and in the following spring grows more rapidly than grass on land which has been hardened by the heat of summer, and the growth of a grain crop. The season which appears to me to be the best for sowing grass seed, is far from being the most convenient for farmers; they cannot often do it at that time without too little preparation of the soil to receive seed, or the loss of one crop; my experiments have proved to my own satisfaction, that much later sowing is preferable to spring sowing with grain; in one instance I prepared the land late in the fall, and cast the seed on the snow, with very good success; on fields designed to be alternately in grass and tillage, the common practice of sowing grass seed in the spring with grain, may consist with good husbandry, for as often as wet seasons ensue, the grass will prosper tolerably

well, and in case of a drought which destroys the grass, the rotation may be changed without any other loss than that of the seed; but on fields which are unsuitable for frequent ploughing, when we wish to have the cultivated grasses remain as long as possible; and on sandy soils, where it is difficult to get a sufficient number of grass plants established, the loss of a single crop is trifling, in comparison with the gain which will be realized by sowing grass seed in the month of August." In awarding this premium the committee do not mean to admit that the experiment of Mr. Allen proves conclusively that his is the best method of laying down land to grass; but that the labour, and result of his several experiments, induce them to recommend that the premium be awarded to him.

To E. Hersey Derby, Esq. the premium of $30, for having raised the past season on about 14 acres, "the greatest quantity of vegetables, grain, peas, and beans excepted, for winter consumption, on his own farm," to wit:

Cabbages, at 56 lbs. per bushel	1503
Pumpkins, 7 ox-cart loads	294
Potatoes	415
Mangel Wurtzel	2036¾
Sugar Beets	274
Russian Radish	90
English Turnips	1026
Bushels	5638¾

Mr. Derby makes the following communication: I have placed the potatoes, mangel wurtzel, and sugar beets in my barn cellars; the Russian radish, and English turnips on the barn floors, and covered them with salt hay; for the cabbages I have taken a piece of grass ground in an airy situation, placed them upside down, close to each other, and covered them with a light covering of sea-weed. This method of preserving my vegetables I have practised several years, and found it to succeed perfectly well. The land in

tillage this year is estimated at about 14 acres. I expect to winter from 20 to 30 cows, together with some young stock. The cost of each particular kind of vegetable, it would be extremely difficult for me to ascertain, the work of my farm being very much blended. I should think the cabbages were raised at the least expense, next the English turnips: then the sugar beets and mangel wurtzel; and all of them at as little expense per acre as an acre of potatoes."

For having raised the greatest quantity of Indian corn, on an acre; winter wheat, rye, millet, carrots, common beets, sugar beets, parsnips, ruta baga, onions, cabbages, peas and beans, no premiums have the present year been claimed. For the Committee,

THOMAS L. WINTHROP, *Chairman.*

Boston, Dec. 10, 1825.

THE PRODUCTION OF SILK AND OF WINE IN THE UNITED STATES.

The following articles must be interesting to all the citizens of the United States. They propose the introduction of new objects of industry; and although they may not be as successfully cultivated in New England as in the warmer and more favoured climates of the Southern States, yet they cannot fail of being interesting topics to us, as citizens of the United States.

It is indeed a most unexpected view of the case, that our imports of *silk* goods alone should exceed by half a million of dollars all our exports of flour and bread stuffs. We make no apology to our subscribers for copying these articles from the American Farmer. There is no pride so narrow as that which leads the Editors of public journals to prefer in all cases *original* to selected matter. The great object of the public communication and diffusion of knowledge is thus defeated.

The American Farmer, (we say it with deep regret,) is seen by a very small proportion of the Farmers of New

England. This does not arise from any local prejudices, but from the character and condition of our population. Our Farmers are compared with those of the Southern States in narrow circumstances. They are not able to devote either the time or the money which the extensive planters of the south can afford to do, to reading and research. In proportion to their ability our yeomanry do full as much, and feel a zeal quite as strong to cultivate their minds, but they are restricted by their means. It is our duty therefore, to give the circulation which our journal affords to the information, and valuable suggestions which are found from time to time in the pages of the American Farmer. To this course there is to be sure one objection, which is, that some of our readers here, and all in the Southern States, though they are few, are exposed to the vexatious repetition of the same articles, but this is not an evil to be compared with that of the withholding such articles from our subscribers. Three-fourths of the readers of this Journal would never see in any other way what we are about to publish.

We would remark, that we still remain firmly convinced, that it can never be the interest of the Farmer of New England to raise the vine, either for the purpose of making wine, or for distillation and the manufacturing of brandy. As strong reasons exist against the cultivation of the vine for the purpose of converting its products into brandy, as against raising it for the production of wine.

The great objection to its culture for wine is the deficiency of sugar, or saccharine matter. This defect is so great in our climate, that cultivators are obliged to add a quantity of sugar to the *must*, or expressed juice, to give it sufficient body. And this defect would be still more sensibly felt in converting it into brandy. On the whole, we are persuaded, that we had better exchange our own natural products for the wines and brandies of other countries, and that our labour and capital will be thus more profitably employed.

But the question as to the production of silk is a very dif-

ferent one. We *can* raise silk, and we can raise it as easily as it can be produced in China or Italy. The white mulberry, the favourite food of the silk worm, thrives in Massachusetts, as well as it does in any part of the world. The chrysalis or cocoon can be easily preserved during our winters. It is not a question of doubt, it has been settled by experience. It has been asserted that the inhabitants of Mansfield now raise silk to the amount of 40,000 dollars a year.

Mr. Clark, of North Hampton, 30 years since, raised the silk worm with complete success. Mr. Holcomb, of Sterling, has been equally successful.

The power to produce silk in Massachusetts, therefore, is ascertained—the only question is as to its comparative profit. That one town should be able to raise it to the amount of 40,000 dollars a year, would seem to go very far towards proving its profitableness. The inhabitants of that town can have no fear as to a disclosure of the facts—they can have no reasonable motive for concealing them—they have no monopoly—and an increase of American production of silk would rather aid than injure them by inducing the government to protect and encourage it. It would be desirable that some person who has raised silk extensively, or (if not extensively) for some years in succession, should state its comparative profit with that of other objects of labour.

The Massachusetts Agricultural Society will grant a premium for the raising of mulberry trees with the view to the production of silk, and that premium will be announced in their next list.

We shall also, if we have time, insert in this journal full notices as to the best mode of raising the mulberry, and the care and management of the silk worm.

We have never placed the culture of silk among the visionary projects, but have always believed that the United States would raise its own silk at no distant day. It

only remains to be seen whether we can raise it to more advantage than to import it, which can never be ascertained before a fair trial shall have been made. Accident, the revocation of the edict of Nantz, first introduced the manufacture of silk into Great Britain, where it has flourished to as great an extent as in Italy. Yet Great Britain imports nearly the whole of the raw material. There is not a doubt that we can do better.

From the American Farmer of Jan. 6th, 1826.

DOMESTIC MANUFACTURE OF SILK AND BRANDY.

[The proceedings in Congress on the interesting proposition of Mr. Miner, of Pennsylvania, which we publish below, have brought to mind the following memorial, which was recently sent to us by a distinguished member of the Legislature of South Carolina; to show the progress of the public mind in the developement of our agricultural resources, and the great probability of the successful establishment of new and profitable branches of industry, to which the labour of the country may be diverted from others, in which production has grown out of all proportion to consumption, and which have, of course, become losing concerns. We understand that the objects sought by the memorialists have been granted by the legislature of South Carolina, and we shall not fail, with the aid of many and good friends in that state, to mark the growth of the vine and the silk worm. Mr. Miner is entitled to the thanks of the friends of agriculture, if it be only for shewing, that in the din of conflicts amongst other interests for all they can get of artificial guards and legislative protection, she, too, has a voice to be heard.]

In Congress, 29th December, 1825.

On motion of Mr. Miner, of Pennsylvania, it was

Resolved, That the Committee on Agriculture be instructed to inquire whether the cultivation of the mulberry tree, and the breeding of silk-worms, for the purpose of producing silk, be a subject worthy of legislative attention.

And should they think it to be so, that they obtain such information as may be in their power, respecting the kind of mulberry tree most preferred; the best soil, climate, and mode of cultivation—the probable value of the culture, taking into view the capital employed—the labour and the product—together with such facts and opinions as they may think useful and proper.

Resolved, That the Committee inquire whether any legislative provisions are necessary or proper to promote the production of silk.

Mr. Miner said, that he held in his hand a resolution which he intended to offer for consideration; but before it was read from the chair, he would say one word to bespeak for it a favourable reception. Its object was to direct the Committee on Agriculture, to make some inquiry relative to the cultivation of the mulberry tree and the breeding of silk worms for the production of silk. That this was a matter of more importance than might on the first impression be supposed, Mr. Miner stated, would be seen, by referring to the report from the treasury of last year. He there found that the value of silk imported was $7,203,338;* an immense amount; that the exports of wheat, flour, Indian corn and meal, amounted to $6,713,595. So that the importation of silk exceeded the exportation of bread stuffs, by near half a million; that the export of tobacco amounted to $4,885,566; the products of the sea to $1,610,990; of the forest to $4,889,646. Compared with either of these, the importance of our silk trade would be apparent, and the value of the production of the article might be inferred. Mr. M. did not know at present, what legislative measures, or whether any, would be proper; but the Committee could judge: he rather looked to advantage from the Committee obtaining and spreading abroad, in their report, all the information that could be obtained, which might arouse public attention to the subject, and convey valuable information.

* Mr. M. should have stated that about a quarter part of this amount was re-exported.

MEMORIAL

To the honourable the President and Members of the Senate of the State of South Carolina.

The respectful memorial of Antonio Della Torre and James C. W. McDonnald, sheweth—that considering the very serious changes which have taken place in this state within a few years, and the prospect of the more extended cultivation of cotton, (the chief staple of South Carolina,) in other states of this Union, in South America generally, in the East Indies, in Mexico and in Egypt; your memorialists have concluded that the investment of their capital in the cultivation of cotton will ultimately prove of very questionable advantage. In the examination of the mode by which they might best serve themselves, your memorialists are convinced that they have discovered what would be of incalculable advantage to the state at large. The principle is no novelty. It is admitted by political economists, that the introduction of a new and valuable article of culture into an agricultural country is the clearest benefit to the public; your memorialists will introduce two new articles, capable of the most extended culture. The productions to which they allude are of this description: they are consumed in South Carolina, but not produced by South Carolina. Our state pays money to foreign countries for what she could raise at home. That the home consumption could not be met for some years, is true; but it is no less true, that in time she could not only plentifully supply her own wants in wines, cognac brandy and raw silk, but she would be enabled to export thousands of gallons of wine and cognac brandy, and thousands of pounds of silk to her sister states and to Europe. This would of course be adding to the capital of South Carolina by retaining the money she now sends tributary to foreign countries, for those articles of comfort and luxury, but in time also, by drawing into her treasury much of the capital of her sister states and of this great continent, she would at once in-

crease her wealth at home, and her rank and consideration abroad, and give new energy to her agricultural and commercial interests. All this would greatly enhance the value of her lands, which are now materially depreciated, inasmuch as it would create a new demand for land to produce those new and valuable articles.

There is another subject on which your memorialists will but respectfully observe, South Carolina has suffered material embarrassments in the mercantile portion of her community by the withdrawal of specie from the general circulation, by the reiterated demands of the Bank of the United States upon the local banks of this state for silver, in order to transmit to the General Government the amount of the revenue raised in her ports; she has long complained that the money so raised is expended in northern cities without any adequate return. This is not only true as regards the duties paid at the custom houses in this state, but is in part true as regards the duties paid at the custom houses in other states on articles re-shipped to this state. For instance, from October, 1824, to October, 1825, there were imported into Charleston direct, forty-four thousand seven hundred and thirty-two gallons, (44,732,) of wine, and fifty-nine thousand two hundred and fifty (59,250,) gallons of brandy; the duty on both articles amounted to forty-six thousand and twelve (46,012,) dollars; presuming that there are half as much more of wines and brandies entered at the custom houses in New York, Baltimore, Savannah, &c., and re-shipped to this state, the duties on importation, being necessarily added to the price, the payment of those duties would devolve also upon the consumers here, and the citizens of this state would pay to the General Government sixty-nine thousand and eighteen (69,018) dollars a year for the mere privilege of importing what she could make at home. If then South Carolina would raise any of the articles which she now imports, she would not only save the duties on the direct or indirect importation, but she also

would enable her own merchants to meet the foreign merchants in other parts of this Union, with the advantage of the whole duty in their favour.

To effect this your memorialists propose introducing an industrious and well conducted free white body of labourers, who are habitually acquainted with the peculiar culture of the vine, the process of making fine wines, cognac brandy, and the raising of silk. This would, they humbly conceive, give a spur to the industry of the poorer classes of citizens in the upper and middle districts, as well as give them the power of earning an easy livelihood on weak, much worn lands. From those products being more valuable than cotton, and the vine requiring but a short time in winter to prune, and a few days in summer to harvest, express and distil, (leaving the remaining portions of the year free to cultivate any other articles,) their culture would much increase the value of negroes, inasmuch as the value of the field hand must be in proportion to the value of the products of his labour.

There are several kinds of grain and many fruits, as olives, &c. which are cultivated in Italy beside those, which are valuable both in their natural state and in the results of expression or decomposition. The introduction of those fruits, &c. particularly the olives, would be attempted by the same labourers; but your memorialists cannot be certain of the results, since the olives have only been tried in Charleston and on the coast; but of wine, brandy and silk they are certain, because they have been made in different parts of this state and North Carolina, and they feel assured also that the Great Author of nature would not have caused festoons of the wild grape to adorn many parts of this state, if He intended to declare—"this shall not be a wine country."

Your memorialists are aware that from some imperfect attempts which have been made, a doubt of the practicability of introducing the extensive and profitable cultivation

of the vine in this state might arise in the minds of many; but when circumstances are exposed, the causes of failure will be evident, to wit: that the company of persons who, prior to the revolution, made the attempt in 1796, or thereabouts, did so, upon the French system of low culture, which is not as well adapted to a new country covered by woods, as the high culture of the Italians in Lombardy, &c.; and moreover, that the climate is much changed since then, by the clearing of the lands, rendering them warmer and drier and more favourable to the culture of the vine. That the attempt *at introduction*, of private individuals, should fail, ought not to be attributed to the climate or soil, but to other sufficient causes, viz: 1st, to our labourers (negroes for the most part) being uninterested and ignorant of the peculiar culture of the vine; 2d, to the nature of our institutions, which to render permanent, it is wisely ordered that property here shall not be hereditary, but shall be liable to sale, division and dispersion amongst the several creditors or heirs. Thus, however successful the undertaking of a private individual like Mr. Naudrez, of Camden, may appear at first, its existence must, in all likelihood, terminate with his own. Private attempts *at introduction* will not succeed till a nursery of knowledge is established, from which the successor or heir to an estate could derive the information necessary to carry on the vineyard. The agricultural society of this State undertook to establish a vineyard about the year 1799, but its members were personally inexperienced in the peculiar culture of the vine, their labourers were hirelings, who did but little, and finally their funds failed them. An experienced vine-dresser would unhesitatingly declare it impossible to succeed *in introducing* the culture of this valuable plant by those means; but with labourers practically acquainted with its culture and interested in the result of their labour, together with a large efficient capital and good management, in any dry elevated situation between the 25th and 51st degrees of latitude, success would be undoubted.

That this is not a wild speculation on the part of your memorialists—that they have not projected so vast an undertaking, without foreknowledge and much continued reflection, they beg leave to state, that one of them, Antonio Della Torre, is a native of Italy, where he was in the habit of daily seeing and aiding in every process in the making of wine and brandy in his father's vineyard, and those of his connexions; that they have been examining into the practicability of their places for two years, and deeming it absolutely necessary (to secure success,) to procure the practical vine-dressers as well as the vines, they have had an agent in Italy for that purpose for more than fifteen months, who writes them word, that a number of persons, in families, of good characters, were ready to come out as soon as the means were afforded them and their promised farms were ready for their reception. But your memorialists find their capital insufficient. However liberal and free from objection their places are, for they have anxiously and jealously examined them, and however beneficial to this country they would prove, they cannot carry them into effect unless aided by the state. Italy, France, Germany and Hungary were not originally wine and oil countries; but the vine, the silk-worm and the olive were introduced by enterprising individuals, encouraged by their governments, and those countries now abound in delicious wines, sweet oil and silk; and may not our republican institution be looked up to for sound policy, and confided in for the wisdom and liberality of its decrees, when that wise liberality is calculated to redound a thousand blessings to the people. They trust it is evident to your honourable house, that the introduction of the vine, the silk-worm and the olive will yield a thousand blessings to the people of this state; and they think it is also evident, that the experienced vine-dresser and maker of fine wines and brandy, the rearer of the silk-worm and expresser of olive oil, ought

to be brought over to insure those advantages, by forming a nursery of knowledge from whence practical information may be extended over the state; that those persons ought to be stockholders, having a deep interest in the products of their labour so as to excite them to make every exertion, and that they ought to be in sufficient numbers to meet the demands of the enterprise; that wherever their vineyards are located the lands in the vicinity would rise in value; and as their products advance the comforts and pleasures of life, in proportion as their village and vineyards beautify the up-country, many of our citizens who now seek amusement abroad, expending thousands of dollars amongst the inhabitants of the north, to the impoverishment of the state, will in time find more pleasure, comforts, and amusing novelties, attend a tour through the upper country, in visiting the village, &c. of those farmers, and the many vineyards, silk and olive establishments of our present citizens who will adopt the culture and extend them over Pendleton, Greenville, Abbeville, York, &c. Thus, by your wise provision, you will allure your wandering children from foreign excursions, and entice them to expend those vast sums of money annually amongst their peculiar brethren of the upper and middle districts: that the present expenditure of this state for foreign wines and brandies, to wit, thirty-three thousand six hundred and thirty (33,630,) dollars for wines, and seventy-five thousand five hundred and ninety-two (75,592,) dollars for foreign brandies—and also, the sixty-nine thousand and eighteen (69,018,) dollars to the general government, as custom house duties on both articles, amounting in all to the large sum of one hundred and seventy-eight thousand two hundred and forty dollars, would annually be preserved to the state, and circulated amongst the agriculturists of the upper and middle districts. As the balance of trade can only be preserved by the value of the exports equalling that of the imports, South Carolina would, by the cultivation of these articles, be enabled to

preserve that balance in her own favour, and by the export of those rich articles of commerce, wine, silk, brandy, and perhaps olive oil, your constituents would become prosperous and happy, and under your auspicious banner would South Carolina ascend this proud eminence amongst her sister states.

As they trust they have fully shown how their individual enterprise would benefit that state which will extend the shield of patronage over its infant head, your memorialists now beg leave to explain the necessity of that patronage thus: The vines will not begin to bear under three years, and the crops are not abundant till after the fifth year, the mulberry trees must have age before they will yield leaves enough for the use of the silk house; the olive trees must acquire a certain age before they begin to bear fruit; and in short, although they will yield abundant benefits to the state, the labourers, and the projectors, *in time*, as the subsequent documents will prove—yet, during that lapse of time, (from three to five years,) little or no interest can be obtained from the amount invested. Your memorialists, therefore, find, that to insure the *efficient* introduction of those articles, so as to secure their permanence and profit to the state, would require a larger capital than they could command; and that unless aided by your honourable body, they would be unable to make the attempt without great risk of failure and ruin. But if your honourable house shall deem their views correct, of the ultimate prospect of cotton becoming, in five or six years, so common a staple over Egypt, the East Indies, South America, Mexico, the middle and southern states of this Union, the Floridas, and the vast territories bordering the Mississippi and Missouri rivers, so as to become valueless to the citizens of this state, as an article of profitable exportation, they trust that their effort to provide additional and most valuable staples in due time will not be considered as premature, and that forty thousand dollars will not be thought too much to loan to the ad-

vancement of so important an undertaking. Your memorialists, therefore, pray, that your honourable body will grant them a loan of forty thousand dollars on sufficient security for five years, without interest, and the after instalments to be so regulated as not to crush the establishment; and any other aid which you, in your wisdom, may deem necessary to advance the agricultural prosperity of the state, and to induce the industrious and inestimable vine-dressers of Europe to take shelter under your paternal government, and who in return will not only pay the money thus loaned, but will make your country rich in the production of the delicious wines of Italy, France, and Hungary; in cognac brandy, silk and olives, and from whom your present citizens will acquire every instruction in their peculiar culture and manufacture. And your memorialists will most respectfully pray, &c.

ANTONIO DELLA TORRE,
JAMES C. W. M'DONNALD.

REVIEW.

An Encyclopædia of Gardening, comprising the theory and practice of Horticulture, Floriculture, Arboriculture, and Landscape-gardening, including all the latest improvements; a general history of gardening in all countries; and a statistical view of its present state, with suggestions for its future progress, in the British Isles. By J. C. Loudon, F.L.S. H.S. &c. London. 1825.

No apology can be necessary for calling the attention of our readers to the first, full and complete treatise on a subject of universal application, intimately connected with the best interests of agriculture. Besides the interest, which every farmer in the neighbourhood of great cities, and who supplies their markets, must necessarily feel, it is a valuable accomplishment to every other farmer, as soon as society has arrived at its second stage of improvement. Hor-

ticulture or the art of gardening may be considered as an index of the state of civilization. So long as the only object of the cultivator is to subdue the wilderness, and procure a mere subsistence, you are not to look for any progress in horticulture or gardening—but whenever these first difficulties are overcome, the attention of the farmer, when his houses and barns are all completed, and his fields subdued to the plough, will be to procure for his family, the luxuries of life; and what luxuries are so much at his command as those which his *own* soil, his *own* industry, and skill can readily furnish? Indeed an improved state of agriculture, such as we are constantly striving to encourage, such indeed as these old-settled States of the north seem to require, if they would wish to keep their excellent population at home, is nothing less than a system of enlarged horticulture—it is the application of gardening to field cultivation. The root culture, so much and so generally adopted in Europe, and recently introduced with us, is in fact transferring from the limited garden to the *field*, the cultivation of certain plants, which had formerly been confined to the former. From whom ought the best lessons as to their cultivation, to be expected, if not from those, who have been employed in cultivating these plants in gardens?

There are very powerful motives for encouraging horticultural knowledge in the New England States, arising from the direction which has been recently given to the capital of these States. It is of little moment now to consider, whether it was, or was not wise, to divert the capital of this country from commerce to manufactures. It *has been done*, and every wise man will admit, whatever may be his views of the policy, that it is *irrevocably* done. The new interests, created by the policy of the national government, are so great and extensive, that we must be a manufacturing people. The effect must be the same, as the same policy has produced in other countries. Villages, towns, and even cities will arise in places, where agriculture would never

have flourished without such an excitement. The sandy and unfertile banks of the Merrimack; the sterile plains of Seekonk, must be made to furnish the vegetables and fruits necessary to the support and comfort of many thousands of persons employed in manufactories. These persons cannot raise the productions necessary to their sustenance, but produced they must be; transported from great distances they cannot be. It follows of course, that the gardening system will prevail in the vicinity of all such establishments.

But this is not the only ground upon which the importance of propagating correct ideas as to horticulture rests. The gardener, the professional gardener, extends his culture to every species of fruit and vegetables, which the taste of the consumer demands.

Confined to this culture, his success depending solely upon it, he invents new modes of cultivation; he watches with more close attention, both the impediments which obstruct, and the processes which facilitate his success. The opportunities thus afforded to the gardener, to watch the progress of plants, and the evils to which they are exposed, and to provide the remedies, are incalculably greater than those which common farmers occupied with objects more interesting can possibly have. The principle of the utility of the division of labour can no where be more sensibly felt than in this example. The *wonders*, (for they are truly such,) which have been effected by this limited and exclusive direction of human ingenuity, can only be well understood by those who have made it their study.

The gardeners of Europe have introduced not only the plants of the tropical regions into the most unfriendly climates, but they have succeeded in naturalizing many valuable hardy plants, and by gradual measures adapted them to their own unfavourable soil and climate.

If the whole amount of actual gain by the triumphs of this art could be stated in a short review, it would create

surprise. We are sensible that much of this *acquisition* would be considered at this moment, in *our* country, an idle, and almost worthless effect of mere luxury. Yet sensible men would pause, before they pronounced such a harsh censure. They would compare this species of luxury with others which we *have* adopted. They would say: if you pay seven millions of dollars for silks, and some millions more for the needless productions of other climates, would it not be well to consider, whether we cannot produce some of these exotic productions at home.

But whatever may be the opinion of our citizens as to the attempt to rival the European nations in horticulture, I think there can be none as to the communication of *the facts*—the real state of horticulture in Europe. If it shall appear, as it probably will, that half a century must pass away, before we can rival them—if it may be thought doubtful, whether at *any* future period we shall ever deem it proper or useful in a republican country, to imitate their extravagance on this subject, yet we hope and believe that we cannot be indifferent as to their success in the cultivation of plants common even at this day to them and to us.

There are many productions now common to them and to us. Surely it is interesting to us to know what the European gardeners have found to be useful in the cultivation of these plants. We know of no work in our country in which they would find a more proper place than in this journal. We have always considered the giving information in horticulture as a portion of our duties, and have devoted a very fair part of our journal to this topic.

Mr. Loudon, the author of the work which we introduce to the notice of our readers, has been for nearly twenty years well known as an author on the subject of gardening, in its most enlarged sense. His reputation is deservedly high, and his work is of a character far superior to those which have hitherto circulated in our country. Mawe's Gardener's Calendar, in its various editions, formed the ba-

sis of McMahon's, which in fact was little else than a transcript of the former, except that McMahon attempted to apply the British work to our own climate and seasons.

Still there was something wanting in the course of instruction in the art of horticulture. Mr. Loudon's work is, as it purports to be, a complete body of all the horticultural knowledge existing in England at the time of its publication.

Much of this work is not applicable to our country, and we presume, and hope never will be. Indeed it never can be until the yeomanry of this country shall be supplanted by purchase, or force, and a new class of rich proprietors substituted in their place. God grant that such a change may be postponed for many centuries. The parts of his work to which we advert, are, his dissertations on ornamental gardening on a *great* scale. It can scarcely be expected, and certainly it is not to be wished, that our small farms should be converted into parks for the pleasure and gratification of great proprietors. Our statutes of distribution of intestate estates, and the general, almost universal feeling of our opulent men present insuperable obstacles to this species of luxury. But, although we may not have a desire to see our country filled with ornamental grounds, formed at extravagant expense, yet we may reasonably desire to see our gardens well furnished and the art of horticulture carried to its highest degree of perfection—we may indeed indulge rationally the wish to see the markets of our cities furnished with the choicest and richest variety of exotic fruits—we may wish to see in our cities a taste for flowering plants of every climate—we know of no taste so innocent, and so accordant with a liberal and enlightened state of society.

Mr. Loudon's work is so expensive, that we can scarcely indulge the hope, that it will be reprinted in our country. We are indebted to the liberality of a friend for the opportunity we have of making extracts from it. No extracts,

however, can give a just idea of its value, because they must necessarily be very partial. To enable those who may wish to procure it we shall make some extracts, which, although they will contain many remarks, very familiar to all cultivators, will show how thoroughly he has digested every topic which relates to gardening.

We would not suggest that Mr. Loudon's work is to be compared with the admirable one of Philip Miller, (improved as it has been in the more recent editions,) but that work is too expensive, except for the most opulent. Mr. Loudon's book is only to be considered as an abbreviation of that *excellent work* and as an historical account of all the improvements which have been made since its last publication.

We shall give as a specimen of the manner in which the duty of a writer on universal gardening has been executed, an extract upon the apple tree, which is a subject of general interest in New England, and we may perhaps add some other articles if we have room for them.

"*Apple.—Pyrus Malus*, L. (*Eng. Bot.* 179.) *Icos. Di-Pentag.* L. and *Rosaceæ*, J. *Pomme*, Fr.; *Apfel*, Ger.; and *Pomo* or *Melo*, Ital.

"*The apple* is a spreading tree with the branches more horizontal than in the pear tree; the leaves ovate; the flowers in terminating umbels, produced from the wood of the former year; but more generally from very short shoots or spurs from wood of two years' growth. The fruit is roundish, umbilicate at the base, and of an acid flavor. In its wild state, it is termed the crab, and is then armed with thorns, with smaller leaves, flowers, and fruit, and the pulp of the latter extremely acid. It is a native of most countries of Europe in its wild state; and the improved varieties form an important branch of culture in Britain, France, Germany, and America, for the kitchen, the table, and for the manufacture of cider. From whence we at first re-

ceived the cultivated apple is unknown; but in all probability it was introduced by the Romans, to whom twenty-two varieties were known in Pliny's time (52), and afterwards the stock of varieties greatly increased at the Norman conquest. According to Stow, carp and pepins were brought into England by Mascal, who wrote on fruit trees in 1572. The apple-tree is supposed by some to attain a great age. Haller mentions some trees in Herefordshire that attained a thousand years, and were highly prolific; but Knight considers two hundred years as the ordinary duration of a healthy tree, grafted on a crab stock, and planted in a strong tenacious soil. Speechly (*Hints*, 58) mentions a tree in an orchard at Burton-joyce, near Nottingham, of about sixty years old, with branches extending from seven to nine yards round the bole, which, in 1792, produced upwards of 100 pecks of apples. Of all the different fruits which are produced in Britain, none can be brought to so high a degree of perfection, with so little trouble; and of no other are there so many excellent varieties in general cultivation, calculated for almost every soil, situation, and climate, which our island affords. Very good apples are grown in the Highlands and Orkneys, and even in the Shetland Isles, (*Caled. Hort. Mem.* vol. ii.) as well as in Devonshire and Cornwall; some sorts are ripe in the beginning of July, and others, which ripen later, will keep till June. Unlike other fruits, those which ripen latest are the best.

"*Use.* For pies, tarts, sauces, and the dessert, the use of the apple is familiar to every one. Duduit, of Mazeres, has found that one-third of boiled apple-pulp, baked with two-thirds of flour, having been properly fermented with yeast for twelve hours, makes a very excellent bread, full of eyes, and extremely palatable and light. (*New Month. Mag.* June 1821.) The fermented juice forms cider, a substitute both for grape-wine and malt liquor. In confectionary, it is used for comfits, *compotes*, marmalades,

ellies, pastes, tarts, &c. In medicine, verjuice, or the juice of crabs, is used for sprains, and as an astringent and repellent: and, with a proper addition of sugar, Withering thinks a very grateful liquor might be made with it, little inferior to Rhenish wine. Lightfoot affirms that the crab mixed with cultivated apples, or even alone, if thoroughly ripe, will make a sound, masculine wine. The apple, when ripe, is laxative; the juice is excellent in dysentery: boiled or roasted apples fortify a weak stomach. Scopoli recovered from a weakness of the stomach and indigestion from using them; and they are equally efficacious in putrid and malignant fevers with the juice of lemons or currants. In perfumery, the pulp of apples, beat up with lard, forms pomatum: and Bosc observes (*N. Cours d' Agriculture*, &c. in loco,) that the prolonged stratification of apples with elder-flowers, in a close vessel, gives the former an odor of musk extremely agreeable. In dyeing, the bark produces a yellow colour; and, in general economy, the wood of the tree is used for turning, and various purposes, where hardness, compactness, and variegation of colour, are objects.

"*Criterion of a good apple.* Apples for the table are characterised by a firm juicy pulp, elevated poignant flavour, regular form, and beautiful colouring; those for kitchen use, by the property of falling, as it is technically termed, or forming in general a pulpy mass of equal consistency, when baked or boiled, and by a large size. Some sorts of apples have the property of falling when green, as the Keswick, Carlisle, Hawthornden, and other codlins; and some only after being ripe, as the russet tribes. Those which have this property when green, are particularly valuable for affording sauces to geese early in the season, and for succeeding the gooseberry in tarts. For cider, an apple must possess a considerable degree of astringency, with or without firmness of pulp, or richness of juice. The best kinds, Knight observes, are often tough, dry, and fibrous; and the Siberian Harvey, which he recommends as one

of the very best cider apples, is unfit either for culinary purposes or the table. Knight has found that the specific gravity of the juice of any apple recently expressed, indicates, with very considerable accuracy, the strength of the future cider. Considering the various uses of the apple, we agree with Speechly in regarding it as a fruit "of more use and benefit to the public in general, than all the other fruits, the produce of this island, united."

"*Varieties.* Tusser, in 1573, mentions in his list of fruits, "apples of all sorts." Parkinson, in 1629, enumerates fifty-seven sorts. Evelyn, about thirty years afterwards, says, (*Pomona*, pref.) "It was through the plain industry of one Harris, a fruiterer to Henry VIII., that the fields and environs of about thirty towns in Kent only, were planted with fruit from Flanders, to the universal benefit and general improvement of the country." Gibson (*Churches of Dove and Homelacy*,) mentions that Lord Scudamore, ambassador to the court of France, in the time of Charles I., collected in Normandy scions of cider-apple-trees, and when he returned to England, encouraged the grafting them throughout the county of Hereford. Hartlib, in 1650, speaks of "one who had two hundred sorts of apples," and "verily believes there are nearly 500 sorts in this island." Ray, in 1688, selected from the information of the most skilful gardeners about London, a list of 78 sorts. Succeeding writers have been enabled greatly to increase the list, partly from the almost continual accession of sorts received from the continent during intervals of peace, but principally from the great numbers raised from seeds. A variety of apple, like those of most other plants, is supposed by some to have only a limited duration; and hence on taking a retrospective view of the lists of sorts, given by Parkinson, Evelyn, and other authors, many of them are not now to be found, or are so degenerated or diseased, as no longer to deserve the attention of the planter. "The moil," Knight observes, "and its successful ri-

val, the red streak, with the musts and golden pippin, are in the last stage of decay, and the stire and foxwhelp are hastening rapidly after them." After making a great variety of experiments for several years, and after many attempts to propagate every old variety of the apple, this author observes (*Tr. on Apple and Pear*, 15.,) "I think I am justified in the conclusion, that all plants of this species, however propagated from the same stock, partake in some degree of the same life, and will attend the progress of that life, in the habits of its youth, its maturity, and its decay; though they will not be any way affected by any incidental injuries the parent tree may sustain after they are detached from it."

"*Knight* next directed his attention to raising new varieties from seeds, and has, by crossing one sort with another, and by having constantly several thousands of seedlings rearing, from which, as they show fruit, to select the best sorts, succeeded in producing several new varieties of apples, much esteemed for the table and the press. Of several of these sorts, and how obtained, accounts will be found in the work above quoted, and in the *Horticultural Transactions*. Several eminent horticulturists, in different districts, are now engaged in a similar manner; and there can be little doubt a valuable accession will, in a few years, be made to this class of fruits. Some, however, as Williamson (*Hort. Trans.* iii. 291.) and Speechly (*Hints*. 188.,) consider that the deterioration of the apple and other fruits may be owing to the climate, and that the return of genial summers would restore to us from old trees as good fruit as heretofore. Such also is our opinion, and Knight's doctrine appears to us contrary to general analogy in vegetable life. It is unquestionably true that all varieties have a tendency to degenerate into the primitive character of the species; but to us it appears equally true, that any variety may be perpetuated with all its excellencies by proper culture, and more especially varieties of trees. However unsuccessful

Knight may have been in continuing the moil, redstreak, and golden pippin, we cannot alter our conviction, that by grafting from these sorts they may be continued, such as they are, or were when the scions were taken from the trees, to the end of time. As to plants propagated by extension, "partaking in some degree of the same period of life as the parent," we cannot admit the idea as at all probable. Vines, olives, poplars, and willows have been propagated by extension for ages, and are still, as far as can be ascertained, as vigorous as they were in the time of Noah or Pliny.*

"*A numerous list of varieties may be considered as puzzling to inexperienced persons who have to select for a garden or an orchard.* Sabine (*Hort. Trans.* iii. 263.) justly observes, that the stock of apples requires reduction rather than increase; and adds, that one of the chief objects to which the attention of the Horticultural Society is at present directed, is to make a judicious selection.

"*A great variety of apple-trees in a bearing state* may be seen in different nurseries both in Britain and Ireland, but especially near London; from these in the autumn, the fruit may be tasted from the trees, and either young plants newly *worked*, or plants in a state of bearing, fixed on and marked, to be taken up at the proper season. The advantages of this mode, especially to such as possess but a small garden, are too obvious to require comment.

"*Propagation.* The apple, like most other hardy trees, may be propagated by seeds, cuttings, suckers, layers, or engrafting; by seeds, for obtaining new varieties, and by the other modes for continuing such as are in esteem.

"*By seeds.* The first business here is, the choice of the seeds; which should be taken from fruits, having the properties it is desired to perpetuate or improve in the greatest degree. The sorts of apples proper for crossing or reciprocal impregnation, appear to be those which have

* We differ from Mr. Loudon on this point.—*Editors.*

a great many qualities in common, and some different qualities. Thus the golden pippin has been crossed by other pippins or rennets, and not by calvils or codlings. A small sized apple, crossed by a large sort, will be more certain of producing a new variety than the above mode; but will be almost equally certain of producing a variety destitute of valuable qualities; the qualities of parents of so opposite natures being, as it were, cruelly jumbled together in the offspring.

"*Knight's mode* of cutting out the stamens of the blossom to be impregnated, and afterwards, when the stigma is mature, introducing the pollen of the other parent, is unquestionably the most scientific mode of performing the operation. In this way he produced those excellent apples, the Downton, red and yellow Ingestrie, and Grange pippins, from the same parents; viz., the seed of the orange pippin, and the pollen of the golden pippin. The Brindgwood pippin he produced from golden pippin blossoms (divested of their stamens) dusted with the pollen of the golden harvey apple. The seeds may be sown in autumn, in light earth, covered an inch, and either in pots or beds. The end of the first year they should be transplanted into nursery rows, from six inches to a foot apart every way. Afterwards they should be removed to where they are to produce fruit; and for this purpose the greater the distance between the plants the better. It should not be less than six or eight feet every way. The quickest way to bring them into a bearing sta[illegible] Williams, of Pitmaston, considers, (*Hort. Trans.* vol. i. 333.) is to let the plants be furnished with lateral shoots from the ground upwards; so disposed as that the leaves of the upper shoots may not shade those situated underneath, pruning away only trifling shoots. This mode of treatment occurred to him on reflecting on Knight's *Theory of the Circulation of the Sap.* Observing, the change in the appearance of the leaves of his seedling plants as the trees advanced in growth, he thought it might

be possible to hasten the progress of the plants, and procure that peculiar organization of the leaf, necessary to the formation of blossom buds, at a much earlier age. He in consequence adopted the mode above described, and succeeded in procuring fruit from seedling apples at four, five, and six years of age, instead of waiting eight, ten, and even fifteen years, which must be the case by the usual mode of planting close, and pruning to naked stems.

"*Macdonald*, an eminent Scotch horticulturist, has also succeeded in obtaining fruit from seedlings at an early period by grafting, already stated as one of the uses of that mode of propagation. In 1808, he selected some blossoms of the nonpareil, which he impregnated with the pollen of the golden pippin and of the Newton pippin. When the apples were fully ripe, he selected some of the best, from which he took the seeds, and sowed them in pots, which he placed in a frame. He had eight or nine seedlings, which he transplanted into the open ground, in spring 1809. In 1811, he picked out a few of the strongest plants, and put them singly into pots. In spring 1812, he observed one of the plants showing fruit buds. He took a few of the twigs, and grafted them on a healthy stock on a wall; and in 1813 he had a few apples. This year (1816) his seedlings yielded several dozens, and also his grafts; and he mentions that the apples from the grafts are the largest. He is of opinion that in giving names to seedlings, raised in Scotland, the word 'Scotch' should be mentioned.

"*A very common practice among those who raise fruit trees from seed*, is, in the second or third season, to select such plants only as have broad and roundish leaves, throwing away the rest; experience having taught, that the former more frequently produce fruit of improved qualities, or at least larger, than those plants which have narrow pointed leaves. The width and thickness of the leaf, Knight observes, 'generally indicates the size of the future apple; but will by no means convey any correct idea

of the merits of the future fruit. Where these have the character of high cultivation, the qualities of the fruit will be far removed from those of the native species; but the apple may be insipid or highly flavoured, green, or deeply coloured, and of course well or ill calculated to answer the purposes of the planter. An early blossom in the spring, and an early change of colour in the autumnal leaf, would naturally be supposed to indicate a fruit of early maturity; but I have never been able to discover any criterion of this kind on which the smallest dependence may be placed. The leaves of some varieties will become yellow and fall off, leaving the fruit green and immature; and the leaves in other kinds will retain their verdure long after the fruit has perished. The plants whose buds in the annual wood are full and prominent, are usually more productive than those whose buds are small and shrunk in the bark; but their future produce will depend much on the power the blossoms possess of bearing the cold, and this power varies in the different varieties, and can only be known from experience. Those which produce their leaves and blossoms rather early in the spring are generally to be preferred, for though they are more exposed to injury from frost, they less frequently suffer from the attacks of insects; the more common cause of failure. The disposition to vegetate early or late in the spring, is, like almost every other quality in the apple-tree, transferred in different degrees to its offspring; and the planter must therefore seek those qualities in the parent tree which he wishes to find in the future seedling plants. The most effective method I have been able to discover of obtaining such fruits as vegetate very early in the spring, has been by introducing the farina of the Siberian crab into the blossom of a rich and early apple, and by transferring in the same manner the farina of the apple to the blossom of the Siberian crab. The leaf and the habit of many of the plants, that I have thus obtained, possess much of the character of the apple, whilst

they vegetate as early in the spring as the crab of Siberia, and possess, at least, an equal power of bearing cold; and I possess two plants of this family, which are quite as hardy as the most austere crab of our woods.'

"*Abercrombie* observes that, 'as the codling is a sort found to change very little from seed, or not for the worse, new plants of it are sometimes raised by sowing the kernels, not by way of experiment for a new uncertain variety, but with some dependence on having a good sort resembling the parent.'

"*By cuttings.* Every variety of apple may be grown from cuttings; though some with much greater facility than others. All those of the burknott and codling tribes grow as well this way as by any other, and some allege that the trees so raised are not liable to canker (*Hort. Trans.* vol. i. p. 120.,) which is supposed to be owing to their 'putting out no tap-root, but spreading their numerous fibres from the knot or burr horizontally.' Even the golden pippin may be continued in this way, and the trees have remained seven years in perfect health, when grafts taken not only from the same tree, but from the very branch, part of which was divided into cuttings, cankered in two or three years. 'All apple-trees raised in this way,' Biggs observes, 'from healthy one-year-old branches, with blossom buds upon them, will continue to go on bearing the finest fruit, in a small compass, for many years. Such trees are peculiarly proper for forcing, and not liable to canker.' (*Hort. Trans.* vol. i. p. 65.) The cuttings are to be chosen from the young wood of horizontal or oblique branches, rather than from upright ones; from six to eight inches or more in length, with a small portion of old wood at the lower end. Cut off the tip of the shoot, and all the buds, excepting two or three next the tip or uppe extremity; then smooth the sections at the lower end, and insert them three or four inches in sandy loam, pressing the earth firmly to them, watering, and covering with a hand-glass. The

proper time for this operation is early in February, and the glass should not be touched, excepting to give water, till the shoots have sprung an inch or two. Shade during the mid-day sun, and begin to harden by giving air in July; finally remove the glass in August; and in October transplant to nursery rows, or in pots, according to future intention. With the burknott tribe, all that is necessary is to plant the cuttings in a shady border, and treat them like those of the gooseberry or currant.

"*By layers.* The success of this mode of propagation may be considered as certain; as it has nothing peculiar in its application to the apple, we need only refer to general directions for performing the operation. The after treatment of the plants is the same with that for those originated by the foregoing or following modes.

"*By suckers.* This mode is generally confined to the paradise and creeping apple for stocks.

"*By grafting and inoculation.* This may be said to be the universal practice in propagating the apple. The first consideration is the choice of stocks; of these there are five sorts in common use:—*Seedling apples*, used for full standards, and riders or wall standards; *seedling crabs*, for standards and half standards; *codling apples*, from layers or cuttings, for dwarfs and espaliers; *paradise apples*, or *doucins*, from layers or cuttings, for low dwarfs and trained; and *creeper apples*, from layers or cuttings, for the best dwarfs or bushes. Dubreuil, gardener at Rouen, recommends the doucin for clayey and light soils, and a free stock for such as are chalky and siliceous. (*Hort. Trans.* iv. 566.)

"*Stocks of seedling apples.* The seeds should be selected from the fruit of vigorous growing young or middle-aged healthy trees; but when wanted in large quantities, they are procured from cider makers; private propagators will adopt the first mode. The sowing and after treatment is the same as for seedling crabs.

"*Seedling crabs.* 'A preference,' Knight observes, 'has

generally and justly been given to apple-stocks raised from the seeds of the native kind, or crab, as being more hardy and durable than those produced from the apple. The offspring of some varieties of the crab, particularly of those introduced from Siberia, vegetate much earlier in the spring than the other trees of the same species; and thence the inexperienced planter will probably be led to suppose, that such stocks would accelerate the vegetation of other varieties in the spring, and tend to produce an early maturity of the fruit in autumn. In this, however, he will be disappointed. The office of the stock is, in every sense of the word, subservient; and it acts only in obedience to the impulse it receives from the branches: the only qualities, therefore, which are wanting to form a perfect stock, are vigour and hardiness.'

"*Seeds, sowing, and culture.* In recollecting the seeds to sow, it must be remembered that the habits as well as the diseases of plants are often hereditary, and attention should be paid to the state of the tree from which the seeds are taken; it should be large and of free growth, and rather in a growing state than one of maturity or decay. The crab trees, which stand in cultivated grounds, generally grow more freely and attain a larger stature than those in the woods, and therefore appear to claim a preference. The seeds should be taken from the fruit before it is ground for vinegar, and sown in beds of good mould an inch deep. From these the plants should be removed in the following autumn to the nursery, and planted in rows at three feet distance from each other, and eighteen inches between each plant. Being here properly protected from cattle and hares, they may remain till they become large enough to be planted out; the ground being regularly worked and kept free from weeds.

"*Codling stocks* are raised chiefly from layers, which, at the end of the season, are taken off and planted in nursery

rows two feet between the rows, and one foot plant from plant.

"*Paradise*, or as they are called by the French, *doucin stocks*, are raised either from layers or suckers; and stocks from *creeping apples* (so named from their aptitude to throw up suckers,) or the *Dutch paradise*, chiefly from the latter mode. They may be planted in nursery rows somewhat closer than the codling stocks.

"*All stocks* require to stand in the nursery till they are from half an inch to an inch thick, at the height at which they are to be grafted; such as are intended for full standards or riders will, in general, require to grow three or four years before being fit for this operation; those for half standards two years, and those for dwarfs one year. The ground between them must be kept clear of weeds, and stirred every winter; the side shoots of the plants, at least to the height at which they are intended to be grafted, rubbed off as they appear, and all suckers carefully removed. Where budding is adopted, the stocks may be worked at nearly half the diameter of stem requisite for grafting; and stocks for dwarfs planted in autumn or spring may be inoculated the succeeding summer. No great advantage, however, is gained by this practice, as such plants require to stand at least another year, before they have produced their bud-shoots.

"*Soil and situation of the nursery.* 'A difference of opinion appears always to have prevailed respecting the quality of the soil proper for a nursery; some have preferred a very poor, and others a very rich soil; and both perhaps are almost equally wrong. The advocates for a poor soil appear to me to have been misled by transferring the feelings of animals to plants, and inferring that a change from want to abundance must be agreeable and beneficial to both. But plants in a very poor soil become stunted and unhealthy, and do not readily acquire habits of vigorous growth, when removed from it. In a soil which has been

highly manured, the growth of young apple-trees is extremely rapid; and their appearance, during two or three years, generally indicates the utmost exuberance of health and vigor. These are, however, usually the forerunners of disease, and the 'canker's desolating tooth' blasts the hopes of the planter. In choosing the situation for a nursery, too much shelter, or exposure, should be equally avoided; and a soil, nearly similar to that in which the trees are afterwards to grow, should be selected, where it can be obtained. Pasture ground, or unmanured meadow, should be preferred to old tillage, and a loam of moderate strength and of considerable depth to all other soils.' (*Tr. on App. and Pear.*)

"*Grafting.* The first business is to select the scions, the principles of which have been already noticed At whatever seasons scions are to be inserted, Knight observes, 'the branches, which are to form them, should be taken from the parent stock during the winter, and not later than the end of the preceding year: for if the buds have begun to vegetate in the smallest degree, and they begin with the increasing influence of the sun, the vigour of the shoots, during the first season, will be diminished, and the grafts will not succeed with equal certainty; though a graft of the apple-tree very rarely fails, unless by accidental injury, or great want of skill in the operator. The amputated branches must be kept alive till wanted, by having the end of each planted in the ground, a few inches deep in a shady situation.'

"*Stocks destined to form standard trees*, may either be grafted at the usual height at which the lateral branches are allowed to diverge, which is commonly six feet, or they may be grafted near the ground, and a single shoot trained from the graft, so as to form the stem of the tree. The propriety of grafting near the ground, or at the height of six or seven feet, will depend on the kind of fruit to be propagated, whether it be quite new and just beginning to bear,

or a middle-aged variety. In new and luxuriant varieties, and these only should be propagated, it will be advantageous to graft when the stocks are three years old, as the growth of such will be more rapid, smooth, and upright than that of the crab, and there will be no danger of these being injured by beginning to bear too early. Middle-aged varieties will be most successfully propagated by planting stocks of six or seven foot high, and letting them remain ungrafted till they become firmly rooted in the places in which the trees are to stand. One graft only should be inserted in each stock; for when more are used, they are apt to divide when loaded with fruit, and to cleave the stock, having no natural bond or connection with each other. When the stocks are too large for a single scion, I would recommend that the grafts be inserted in the branches, and not in the principal stem. This practice is not uncommon in various parts of England; and is general in Germany, with free stocks, where, however, they often neglect to graft the trees; and thus, as Neill observes, produce an endless variety of sorts, some good, but most of them a little better than crabs.

"*Stocks intended to form half standards*, are grafted at three or four feet from the ground; and those for *dwarfs* at eight or ten inches, or lower. Miller and Knight agree in recommending to graft near the ground where lasting and vigorous trees are wanted; but the practice of the continental gardeners, and the opinions of some in this country, are in favour of leaving a stem below the graft of not less than a foot in length.

"*The kind of grafting generally adopted* for moderate sized stocks is the *whip* or *tongue* method or the new mode of saddle-grafting adopted by Knight; and the general time for the apple is the end of February and greater part of March. Much depends on the season and situation; the guiding principle is, to make choice of the time when the sap of the stock is in full motion; while that

of the scions, from having been previously cut off and placed in the shade, is less so.

"*The common season for budding the apple* is July; as there is nothing peculiar to this tree in performing that operation, we refer to the general directions.

"*Transplanting grafted trees in the nursery.* 'It has been recommended,' Knight observes, 'to remove grafted trees once or twice during the time they remain in the nursery, under the idea of increasing the number of their roots; but I think this practice only eligible with trees which do not readily grow when transplanted. I have always found the growth of young apple-trees to be much retarded, and a premature disposition to blossom to be brought on by it; and I could not afterwards observe that those trees, which had been twice removed, grew better than others. It has also been supposed that many small roots, proceeding immediately from the trunk, are, in the future growth of the tree, to be preferred to a few which are large; but as the large roots of necessity branch into small, which consequently extend to a greater distance, the advantages of more transplantations than from the seed-bed to the nursery, and thence to the garden or orchard, may reasonably be questioned.'

"*Other sources of choice.* Another source of choice, under each of the above heads, may respect the soil, situation, and climate of the garden, or orchard, in which they are to be planted, or the character, whether of dwarfs, espaliers, or wall-trees, which they are to assume there. The winter and spring table apples may require a south wall in one district, while in another they may attain equal maturity as standards or espaliers. Where there is ample room, a selection of large sorts, as the Alexander and Baltimore apples, or of such as are the most beautifully coloured, as the violet, carnation, &c. may be made to gratify the eye; where room is wanting, useful sorts and great bearers are to be preferred, as the golden and ribstone pippin, summer

pearmain, codlings, grey russet, summer and winter colvilles, &c. In general, small-sized fruit, as the Harveys and Granges, are to be preferred for standards, as less likely to break down the branches of the trees, or be shaken down by winds; middling sorts for walls and dwarfs, and the largest of all for espaliers. In respect to a soil liable to produce canker, sorts raised from cuttings may be desirable, as the Burknott and codling tribe; and where an occupier of a garden has only a short interest therein, such as come into immediate bearing, as the Burknotts, and others from cuttings, and the Hawthorndean, Apius's apple, and other short-lived dwarf-sorts on Paradise or creeping stocks, may deserve the preference. On the contrary, where a plantation is made on freehold property, or with a view to posterity, new varieties on crab or free stocks, should always be chosen, as the Grange, Ingestrie, Harvey, &c. Some excellent sorts will grow and produce crops every where, as the Hawthorndean, codling, and Ribston pippin; the latter of which, Nicol says, will grow at John o'Groat's house, and may be planted in Cornwall; others are shy bearers in cold situations, as the Newtown pippin of America, and most of the newly imported French sorts.

"*Choice of plants and planting.* This depends in some degree on the object in view, the richness of the soil, and the shelter; young trees are more likely to succeed in exposed sites and poor soils, but the apple will bear transplanting at a greater age than any other fruit-tree. It may be planted in any open weather from November till February.

"*Soil and site for permanent planting.* Any common soil, neither extremely sandy, gravelly, nor clayey, on a dry sub-soil, and with a free exposure, will suit this tree. On wet, hilly sub-soils, it will do no good, but after being planted a few years will become cankered, and get covered with moss. Where fruit trees must be planted on such soils, they should first be rendered as dry as possible by underdraining; next, provision made for carrying off the rain-

water by surface gutters; and, lastly, the ground should not be trenched above a foot deep, and the trees planted rather in hillocks of earth, above the surface, than in pits dug into it. There is no point of more importance than shallow trenching and shallow planting in cold wet soils, in which deep pits and deep pulverisation only serve to aggravate their natural evils of moisture and cold. (*Sang, in Caled. Hort. Mem.* iv. 140.)

"*Knight* observes, that 'the apple-tree attains its largest stature in a deep strong loam or marly clay; but it will thrive in all rich soils, which are neither very sandy nor wet at bottom. It succeeds best,' he adds, 'in situations which are neither high nor remarkably low. In the former its blossoms are frequently injured by cold winds, and in the latter by spring frosts, particularly when the trees are planted in the lowest part of a confined valley. A south, or south-east aspect is generally preferred, on account of the turbulence of the west, and the coldness of north winds; but orchards succeed well in all aspects; and where the violence of the west wind is broken by an intervening rise of ground, a south-west aspect will be found equal to any.'

"*Abercrombie* says, 'all the sorts of apple-tree may be planted in any good common soil, with a free exposure, whether that of a garden, orchard, or field; so that the ground be neither very low nor excessively wet, nor subject to inundation in winter. Avoid, as far as possible, very strong clayey and gravelly soils.'

"*Mode of bearing.* 'In all the varieties of the common apple, the mode of bearing is upon small terminal and lateral spurs, or short robust shoots, from half an inch to two inches long, which spring from the younger branches of two or more years' growth, appearing first at the extremity, and extending gradually down the side: the same bearing branches and fruit-spurs continue many years fruitful.' (*Abercrombie.*)

"*Pruning.* 'As, from the mode of bearing, apple-trees

do not admit of shortening in the general bearers, it should only be practised occasionally: first, where any extend out of limits, or grow irregular and deformed; and secondly, a good shoot contiguous to a vacant space is shortened to a few eyes, to obtain an additional supply of young wood from the lower buds of the shoot for filling up the vacancy. But to shorten without such a motive, is not merely the cutting away of the first and the principal bearing part of the branches, but also occasions their putting forth many strong useless wood-shoots where fruit-spurs would otherwise arise; and both effects greatly tend to retard the trees in bearing; whereas the fertile branches being cultivated to their natural length, shoot moderately, and have fruit-spurs quite to the extremity.' (*Abercrombie.*)

"*Espaliers and wall-trees* require a summer and winter pruning.

"*The summer pruning.* Train in the young shoots of the same year, which are likely to be wanted in the figure, and retrench them where ill placed or too numerous; for as the trees continue bearing many years on the same branches, they only require occasional supplies of young wood; therefore, begin in May or June to pinch off or cut out close all fore-right, ill-placed, and superfluous shoots; retaining only some of the promising laterals in the more vacant parts, with a leader to each branch; train in these between the mother branches, at their full length, all summer; or, where any vacancy occurs, some strong contiguous shoot may be shortened in June to a few eyes, to furnish several laterals the same season. Keep the shoots in all parts closely trained, both to preserve the regularity of the espalier, and to admit the air and sun to the advancing fruit.

"*The winter pruning* may be performed from November till the beginning of April. This comprehends the regulation of the wood-branches, the bearers, and of the young shoots. First, examine the new shoots trained in the preceding summer; and if too abundant, retain only a compe-

tency of well placed and promising laterals, to furnish vacant parts, with a leading shoot to each parent branch. Continue these mostly at full length, as far as there is room. Cut out close the superabundant and irregular young shoots; and where any of the elder branches appear unfruitful, cankery or decayed, cut them either clean out, or prune short to some good lateral, as may seem expedient. Also prune into order any branches which are very irregular, or too extended. Carefully preserve all the eligible natural fruit spurs; but remove all unfruitful stumps and snags, and large projecting rugged spurs; cutting close to the old wood. As each espalier is pruned, let the old and new branches be laid in at convenient distances, according to the size of the fruit, four, five, or six inches asunder, and neatly tied or nailed to the wall or trellis. (*Abercrombie.*)

Training espaliers. The following mode, as described by Mearns, is the most general, and by using stakes, which do not answer so well for any other species of espalier-tree as for apples, is also the most economical:—In the first stage of training, the stakes require to stand as close together as twelve or fourteen inches, and to be arranged in regular order to the full height of five feet, with a rail slightly fastened on the top of them for neatness' sake, as well as to steady them. If stakes of small ash, Spanish chesnut, or the like, from coppices or thinnings of young plantations, be used, they will last for three or four years, provided they are from one inch and a half to two inches in diameter, at a foot from the bottom. They need not be extended further in the first instance than the distance to be considered probable the trees may reach in three years' growth; at that period, or the following season, they will all require to be renewed, and the new ones may be placed on each side, to the extent that the trees may be thought to require while these stakes last, finishing the top as before, with a rail. As the trees extend their horizontal branches, and acquire substance, the two stakes on each side of the one that supports

the centre leader of the tree, can be spared, and removed to any of the extremities where wanted. And as the three extends further, and acquires more substance, every other stake will be found sufficient; and the centre stake can be spared also, after the leader has reached its destined height, and is of a sufficient substance to support itself erect. When such a form of training is completed, and the branches of sufficient magnitude, about six, eight, or twelve stakes will be sufficient for the support of the horizontal branches, even when they have the burden of a full crop of fruit. At any other time about six stakes to each tree will be all that are necessary.

"*In selecting trees for the usual horizontal training*, look out for those which have three fine shoots. Or it is better to plant them one year where they are to remain to get their roots well established, and then to head them down to within eight or nine inches of the ground, and to encourage three shoots from the top of each stool, so that the first and lowermost horizontal shoots may be tied down within ten inches of the ground.

"In the pruning season cut down the middle shoot of the three, reserving what is left as an upright leader, its length being about twelve inches from the base of the other two, and train these in a horizontal position, fixing the middle shoot, which was cut down perpendicularly to the stake it is planted against. But if it is against a wall or pales, it may be better to zigzag the upright leader, for the more regular distribution of the sap, and when that is intended, the leader should be left a little longer, to allow of its being bent. In espalier training this zigzagging is not so readily done, nor is it necessary where the trees are not intended to rise high. It is always necessary, in the course of training the young wood across the stakes, in summer, to have large osier, or similar rods, to tie them to, in order to guide the shoots of the year in a proper direction. The proper ties are small osier twigs.

"*The following summer* encourage three other shoots in the same way as the season before, then cut off the middle shoot at ten, twelve, or fifteen inches above the base of the other two, and train these last as in the former season; and so continue training, year after year, till the trees have reached their destined height. (*Mearns* in *Hort. Trans.* v. 46.) An improvement on this mode consists in cutting down the leading shoot during summer, in the manner practised by Harrison, of Wortley Hall, as described in the succeeding paragraphs.

Training against a wall. The horizontal mode is unquestionably to be preferred for so vigorous a growing tree as the apple; and Harrison's mode of conducting the process (*Tr. on Fruit-Trees*, 1823. ch. xx.) appears to us much the best. The peculiarity of his method is, that instead of training the leading shoot in a serpentine or zigzag manner with Hitt or Mearns, to make it send out side shoots, he adopts the much more simple and effectual mode of cutting down the current year's shoots in June; by which means he gains annually a year, as side shoots are produced on the young wood of that year, as well as on last year's wood which it sprang from.

"*The tree being a maiden plant* is the first year headed down to seven buds. Every bud pushing, two of the shoots, the third and fourth, counting upwards, must be rubbed off when they are three inches in length; the uppermost shoot must be trained straight up the wall for a leading stem, and the remaining four horizontally along the wall. The leading shoot having attained about fifteen inches in length, cut it down to eleven inches. From the shoots that will thus be produced select three, one to be trained as a leader, and two as side branches. Proceeding in this way for seven years, the tree will have reached the top of a wall twelve feet high. With weak trees, or trees in very cold late situations, this practice will not be advisable, as the wood produced would be too weak, or would not ripen; but in all

ordinary situations, it is obviously a superior mode to any that has been hitherto described in books. In pruning the spurs of apple and other trees, Harrison differs from many gardeners in keeping them short, never allowing one spur to have more than three or four fruit-buds, and in cutting off the spurs entirely, or cutting them down for renewal every fourth or fifth year. Every practical gardener, desirous of excelling in the training and spurring of fruit-trees, ought to possess Harrison's treatise.

"*Heading down* apple-trees that are much cankered, is strongly recommended by Forsyth, who gives an example of one, after it had been headed down four years, which bore plenty of fine fruit. The point at which it was headed down was within eighteen inches of the soil; and under it, on the stump, were two large wounds and made by cutting out the cankery part, and which being covered with the composition were soon nearly filled up with sound wood. Very little pruning is at first given to trees so cut, but afterwards a regular succession of bearing wood is kept up by removing such as have borne for three or four years. Thus, one branch which has done bearing, is cut off, and succeeded by another, and when that is tried also, it is cut off, and replaced by a third, and so on.

"*Grafting old apple trees* of different sorts with superior varieties, is an obvious and long-tried improvement. In this case, if the tree is a standard, it is only headed down to standard height; in old subjects, most commonly the branches only are cut over within a foot or two of the trunk, and then grafted in the crown or cleft manner.

"*Injuries, insects, &c.* The misletoe (*Viscum album*) is frequently, through negligence, suffered to injure trees in orchards, and different species of mosses and lichens those in gardens. 'Moss,' Knight observes, 'appears to constitute a symptomatic, rather than a primary, disease in fruit trees: it is often brought on by a damp or uncultivated soil, by the age of the variety of fruit, and by the want of air

and light in closely planted unpruned orchards. In these cases it can only be destroyed by removing the cause to which it owes its existence.'

"*Blights.* Whatever deranges and destroys the organization of the blossom, and prevents the setting of the fruit, is in general termed a blight; whether produced by insects, parasitical plants, or an excess of heat or cold, drought or moisture. One of the most injurious insects with which the apple-tree has been visited for the last twenty years, is the *Aphis lanigera*, L., the *Eriosoma mali* of Leach; woolly aphis, apple-bug, or American blight. 'The eriosomata,' Leach observes, 'form what are called improperly galls on the stalks of trees, near their joints and knobs, which are in fact excrescences, caused by the efforts of nature, to repair the damage done to the old trees by the perforation of those insects whose bodies are covered with down.' (*Sam. Ent.*) Salisbury has given an engraving of the eriosoma as he found it appear under a magnifying glass, when attacking the roots and the branches, as well as a still more highly magnified figure of one of the bugs without wings and winged. The latter he considers likely to be the male insect. Thoroughly cleaning with a brush and water, together with amputation when it has been some time at work, is the only means of destroying this insect; but even this will not do, unless resorted to at an early stage of its progress. The caterpillars of many species of butterfly and moth, and the larvæ of various other genera of the *hemiptera* and *lepidoptera*, &c. as *Scarabæus*, *Curculi*, &c. attack the apple-tree in common with other fruit-trees; and on a large scale it is difficult, if not impracticable, to avoid their injurious effects. Burning straw or other materials under the trees has been long recommended; but the principal thing to be relied on, in our opinion, is regimen; that is, judicious sub-soil and surface-soil, culture, and pruning."

It would be improper for us to quit the subject of Mr. Loudon's book without expressing some qualifying thoughts.

Mr. Loudon is professedly but a compiler;—there is little if any thing new in his book, though it comprises the substance of a large number of works. It is not well fitted for the general mass of readers, and those who have furnished libraries will have little use for it, except as a convenient book of reference. Much, at least one half of the work, is not in any degree applicable to our country. Still Mr. Loudon's work is curious, and interesting, inasmuch as it shows what Great Britain is—the state of luxury, which prevails in the most expensive of all modes in which exorbitant wealth seeks to disburden itself.

There are defects in Mr. Loudon's work. There is too much parade of learning, much more than a truly learned man would make. Some topicks seem to have been introduced solely with a view to effect—to create surprize. For example, there is either too much or too little on the subject of insects—there is a very silly play upon words, a disposition to be witty, when the author introduces among the injurious *insects*, *men*, who steal the fruit itself instead of consuming it. There are many insects enumerated which do but little if any injury, and a great number highly injurious which are omitted.

Mr. Loudon's book is however one which we should covet, and which we mean to own. It is very much, like all Encyclopedias, not calculated for practical men, who intend to be masters of any science, but for the curious, who wish to know something of every art.

THE SILK WORM AND ITS NATURAL FOOD THE MULBERRY.

IN the present state of our country, and while it is a debateable question, whether it would be expedient to introduce the silk worm, and its favourite food, the mulberry, into general cultivation, it would be inexpedient to insert the

great mass of information which has been collected on this subject by European writers.

In favour of the introduction of this department of industry may be urged, the great demand for manufactures of silk, for which we now pay to other nations seven millions of dollars—the advantage derived from the domestic employment of *females*, who, until the introduction of cotton manufactories, were in our country less employed than in any other—and the opportunities which it would afford of making even the young children of both sexes useful, before the ages at which they would be fitted for any sort of labour in husbandry. These are considerations of great importance.

We should indeed regret to see our females and young children employed, as in most European countries they are compelled to be, in labour, unsuited to their condition and constitutions. Such employment would soon change their moral and physical character, upon which the happiness of our population, and the stability of our republican institutions principally repose.

Yet employment, occupation, not inconsistent with the cultivation of the mind, or the strengthening and developement of the bodily powers, is of great value and of the highest importance. There can be no doubt that much time is unnecessarily lost in all our cities and in the country during the years of childhood, which might be profitably employed by occupations which would strengthen both the body and the mind. The instruction of the young is principally given in the winter season, and in the summer the children are too often left without any useful employment.

The care of the silk worm—the collection of leaves for its food, could be entirely managed by children from 5 to 12 years of age, under the eye of a mother or an elder sister.

As the *quantity* of land required for the cultivation of the

mulberry plants, (for we must not call them trees, since they are not permitted to grow beyond the size of shrubs,) may be considered literally as of no value in the estimate; and as all the gain which the farmer would derive from the sale of his silk would be merely the result of labour, which is now wholly unproductive, it seems to be a very clear case that we should encourage this culture.

It can scarcely be necessary to reply to an objection which is sometimes urged, that silk manufactures are a luxury which our republican simplicity ought to reject, which are not a necessary of life. The fact that we do pay for them an amount equal to one-tenth part of all our exports is a sufficient reply. No sumptuary laws can check this luxury, if it be one. There is no intermediate point at which you can stop, between the clothing with furs prepared from the wild beasts, and the going nearly naked in the warm season, as do our native Indians, and the present state of our comforts and delicacies. Manufactures of silk are admirably adapted for our warmer seasons, by their strength, their lightness, their pliability, their susceptibility of every variation of colour. They are a necessary of life, and will be used, as they have been, by millions in this country, unless a dark age of disaster and poverty, a degradation such as Europe has at least once experienced, should be our portion. With these views we shall insert some short observations on the cultivation of silk from the British Encyclopedia.

If the culture should suceeed, or be adopted with spirit, we shall, from year to year, insert from the French and Italian writers more minute directions for the management of the silk worm, and of its curious productions.

" Though the silk worm be a native of China, there is " no doubt but it might easily be propagated perhaps in " most of the temperate zones. The eggs of this insect in- " deed, require a considerable degree of warmth to hatch " them, but they also can endure a severe frost. No less

" than 5,400 pounds of silk was raised in 1789 in the cold " sandy territories of Prussia. In the province of Pekin, " in China, where great quantities of silk are fabricated, " the winter is much colder than *even in Scotland.* From " the information of some Russians, who were sent thither " to learn the Chinese language, we find that Reaumur's " thermometer was found from 10 to 15 degrees below " the freezing point. Nor is it difficult to rear the food of " the silk worm in a temperate climate. The mulberry " tree is a hardy vegetable, which bears, without injury, the " winters of Sweden, and even of Siberia. Of the seven " species of the mulberry, four of them, (to wit the white, " red, black, and Tartarian,) it is believed could be reared " in Britain and Ireland. The white grows in Sweden, the " red is abundant round Quebec—the black delights in " bleak situations, exposed to winds on the sea shore—and " the Tartarian is represented as growing in the chilly " regions of Siberia.

" As to the superior qualities of the different species, pro- " bably there is very little to be pointed out amongst the " four just mentioned with regard to nourishment, except " what may be drawn from the following fact: that if the " three first mentioned are laid down together, the silk worm " will eat, first, the white, then the red, and next the black " in the order of the tenderness of the leaves; but all must " yield to the white which seems to be its *natural* food.

" In Calabria (Naples) the red mulberry is used; in Va- " lencia (Spain) the white; and in Granada, where excel- " lent silk is produced, the mulberries are all black. The " white seems to flourish very well in a moist stiff soil. The " black agrees very well with a dry, sandy, and gravelly " soil, and is most luxuriant in a rich moist loam."

[*Note.*—There seems to be some negligence in this remark. The white mulberry is said to prosper very well in a moist *stiff* soil, and yet it is said to be most luxuriant in a rich moist loam. The experience which we have had induces

us to believe, that the white mulberry flourishes best in a rich garden loam, *not* moist, and we think those who cultivate this plant, should prefer for its culture their best soils. It is however encouraging to learn, that the best silk is produced from the black mulberry, which in our country will grow in all soils, though we doubt, nay, our own experience enables us to doubt, the assertion, that it agrees well with a sandy and gravelly soil. It will *exist* in such a soil, but its growth is feeble, and from long experience we are enabled to say, that in our hot and dry climate it is not expedient to plant the black mulberry in warm, dry, and shallow soils. Yet it is important to us to know, that excellent silk may be produced from the black mulberry.—*Editors.*]

" It may justly be asserted," say the Editors of the Encyclopedia, " that Britain possesses some advantages in the " raising of raw silk which are not enjoyed by warmer " countries. Even in the south of France Arthur Young " informs us the mulberry leaves are often nipped by frost " in the bud, but this is *scarcely* ever the case in Britain." [During 30 years' experience we have never known the mulberry to be affected either by winter or spring frosts in this country. It is the latest tree to put forth its leaves, and it is not affected by our latest frosts.—*Ed.*]

" It is well known that thunder and lightning are hurtful " to the silk worm. Now our climate (Great Britain) can " boast that it is almost wholly exempted from those dread- " ful storms of thunder and lightning which prevail so much " in hot climates." [This remark wants confirmation.]

" Nature," say the English writers, " has then furnished " us with every thing requisite for the silk manufacture; it " remains only for us to improve the advantage which we " possess. Let mulberry trees be planted by proprietors " of land, and let a few persons of skill and attention devote " themselves to the raising of silk worms. This is an em- " ployment which will not interfere with any manufacture " already established;—on the contrary, it would afford a

" respectable, a lucrative, and agreeable employment to la-
" dies who have at present too few professions, to which
" they can apply." [If these remarks were applicable to Great Britain, how much more forcible are they to our country. It is well known that the females of Great Britain, and still more those of France, contribute essentially to the support of their families, and the productive labour of their respective nations. With us, the female sex are by our usages almost excluded from the sphere of productive industry.—*Editors.*]

" The following method of raising mulberry trees from
" seed is practised in the south of France, and has been re-
" peated by Dr. Anderson of Madrass :—Take the ripe ber-
" ries when they are full of juice and of seeds, next take a
" horse-hair line or rope, and with a good handfull of ripe
" mulberries run your hand along the line bruising the ber-
" ries, and mashing them as much as possible as you pass
" your hand along, so that the pulp and seeds of the berries
" may adhere in great abundance to the rope or hair line;
" then dig a trench in the ground where you propose to
" plant; cut the rope or line into parts equal in length to
" the proposed trenches, and then bury the rope in them,
" always taking care to water them well, which is essential
" to success. The seeds of the berries, thus sown, will grow,
" and send up young suckers, the leaves of which are the
" best food for the silk worm. The facility and rapidity
" with which young leaves may by this means be produced,
" is evident, for as many rows of trenches may thus be fill-
" ed as can be wished, and it can never be necessary to
" have mulberry trees higher than our raspberries, goose-
" berries and currants. Whenever they get beyond that,
" they lose their value, and if these trenches succeed you
" may have a fresh supply coming up day after day, or
" any quantity you please. Thus an abundance of these
" trees may be reared. But as mulberry trees are not yet
" found in abundance in Britain, it were to be wished that

"some other food could be substituted in their place. "Attempts have been made, and it has been found possi- "ble to support the silk worm on lettuce."—*British Encyclopedia. Art. Silk.*

The editors then proceed to give an account of successful attempts to support the silk worm on lettuce, but still it seems to be well understood that the mulberry of various sorts, and especially in preference the white, are its natural, favourite, most wholesome diet.

We acknowledge that the article which we have just quoted is very loose and unsatisfactory. We are not told whether this hair line is buried in the summer, at the time when the mulberries are ripe, or whether the rope so prepared is kept till the spring after, and then planted. We are left in ignorance whether the seed of the mulberry vegetates instantly; how soon the act of stripping commences; and to what extent it is pursued. We are not informed how long the hedge row of mulberry bushes, (for they must be so considered,) endures. Stinted, we know they must be, from the continued destruction of their leaves. No plant could sustain such repeated injuries without suffering most essentially. The method of distributing the seeds seems to us to be very coarse and inartificial. Hair rope is not always easily procured; the seeds must be unequally distributed, and sown too thick. Even if it is the practice in the south of France, we should be disposed to think it a bad one. The seeds of the mulberry may be separated from the pulp like the seeds of all other berries, by mashing them and pouring water upon them and stirring the mixture till the seeds fall to the bottom, when they may be collected and dried, and sown at equal distances. We must suppose that the best time of sowing would be the spring, especially in our climate, in order to enable the young plant to acquire sufficient firmness to resist the next winter's frost. The great difficulty, we apprehend, in the

way of new experiments here, would be the procurement of seeds of the white mulberry in sufficient quantities.

The seeds of the black mulberry are easily obtained, and may serve to introduce the culture of silk, until we can procure the white mulberry seeds in sufficient quantity. The only point of any importance which is stated by the learned editors of this work, is, that the plants are not suffered to grow into trees. They are kept down so as to be within the reach of children from the ground. No doubt this is essential—the labour would be too great if the gatherers of the leaves were obliged to mount upon ladders to collect them.

Cultivators of the white mulberry can import the tree from the Linnean Garden, owned by Mr. Prince, at Flushing, Long Island, near New York. Two or three trees might be kept as standards for the production of fruit. They grow with great rapidity, and bear in the very first year after they are transplanted. From two or three trees a sufficient quantity of ripe seeds may always be obtained to furnish the small shrubberies necessary for the support of the silk worm. Another impediment will occur in the commencement of the experiment; the procuring a sufficient number of cocoons, containing the male and female insects. But they exist in our own country, and we hope that a liberal feeling will be encouraged among those who have heretofore raised them, and that they will be ready to cooperate in the exertion which, we hope, is about to be made for the extensive cultivation of this branch of industry.

It would be very desirable that those persons who have already entered into this employment in New England, should send to the Editor of the New England Farmer, some account of their success, and of the various processes necessary to the cultivation.

If we were to insert all which European writers have said upon the subject, it would neither be received with so

much confidence, nor be entitled to as much respect as that of our own cultivators.

So much depends upon climate, upon the price of labour, upon the demand for the production, that our own experience is of far higher value than that of any other nation.

Yet with all our ignorance of this culture, with the discouragements, which any new employment of capital and skill must encounter, we feel convinced that the time has arrived in which the production of silk may be undertaken with safety, we hope with great profit.

Since the foregoing remarks were committed to the press, being much dissatisfied with the negligent manner in which the subject was treated in the British Encyclopedia, we have had recourse to the work of the Abbé Rozier, entitled "Cours Complet d'Agriculture," etc. and although we cannot at this time, and having extended this article to so great a length, give at large his extensive treatise, yet we may and perhaps ought to add some general hints derived from an authority so much more entitled to weight than any British writers on this subject can be. We shall only insert at present some general rules, which we gather from this French work.

The first is, that they consider the white mulberry the best adapted for the food of the silk worm. They speak of no other food except the various sorts of mulberries as being adapted to the successful culture of this insect.

The second is, that the quality of the silk depends in a very great degree upon the soil and exposure of the mulberry plant or tree. That the most vigorous growth, and the most luxuriant and largest sized leaves are not the best adapted for the production of the best silk.

"The leaves for the purpose of producing the best silk, are those which are grown in dry land, stony, elevated and sandy." "The trees produce fewer and smaller leaves than those grown in rich soils, but their leaves have more

flavour and are more nutritive." [This doctrine is certainly favourable to the culture of the silk worm in the gravelly, stony, and sandy soils of New England.]

"The quality of the leaves of the mulberry is affected by various circumstances. 1st. The age of the plants. The leaves of a young tree are more watery, the juices less concentrated, than in an old one."

"The exposition, the exposure has also great effect. Trees planted in a northern exposure or aspect are *always* below mediocrity, or inferior in quality; the juices are too watery, and the worms do not thrive as well upon them. Those raised on hill sides with a southern exposure are preferable to those grown on plains."

3. The berries gathered for seed cannot be *too ripe*. When they are just barely fit for eating not more than fourteen per cent. will vegetate. When fully ripe and ready to fall more than half the seeds have usually grown; if left till they are dry, nearly all have succeeded. The mode of obtaining seed is to dry the berries, and when wanted to rub out the seed, and fan away the dried pulp.

4. As to the time of sowing.—In the most southern parts of France they sow as soon as the seed is ripe, but the most usual course is to sow the following spring. In France, according to the climate of different provinces, in February, March and April. In New England we could not sow till April or May.

5. The manner of sowing.—They sometimes sow in the spot where the young mulberry is to grow for the first three years; but they prefer sowing them in boxes about three feet long, and nine inches deep. The reason assigned is, that they are more easily watered and sheltered against frost. They remove them from the boxes into rows in a nursery which is done without injury to the roots by taking off one of the sides of the box. Rozier remarks upon the practice of rubbing the berries on a hair rope, and then

burying it in the earth, that it is an useless complication of labour.

6. The French seem to be in the constant practice of grafting their mulberries. No satisfactory reason seems to be assigned for this certainly expensive process; but as they are very familiar with the cultivation, no doubt experience must have shown them the value, or the French, being habitual economists, would not have adopted it.

7. It was formerly the practice in France to plant out the mulberry as standards, and to suffer them to attain a considerable size, taking care, however, so to manage the pruning as to keep all the limbs within the reach of gathering ladders. The practice is of late much changed. It was observed, says Rozier, that the young plants in nurseries put forth their leaves much sooner than the standard trees, and the necessity of obtaining early food for the young insect obliged the cultivators to provide themselves with a *certain number* of mulberries in the bush or shrubby state.

From these first experiments arose the prevalent practice of raising dwarf mulberries extensively, and also of surrounding their fields with mulberry hedges. It is said that the produce of an acre in dwarf mulberries is much greater than one in large trees, the distance between the plants being so much less, so that the number of dwarfs may be eight times as great. This is admitted to be true at first, but some cultivators deny that it continues to be so after the standard trees have attained their full size. The benefits of the dwarf cultivation are thus briefly stated:—1st. Women and children can gather the leaves without danger, and much quicker than the most experienced gatherers could on large trees. 2d. The proprietor is much more speedily repaid his advances. 3d. The dwarf mulberries put forth their leaves earlier, a valuable quality, as the more early the worms are produced the better. 4th. Dwarf trees will succeed in situations in which standards will not. 5th.

Their leaves are quite as good as those of the others, but the leaves of young plants should be given to newly hatched worms, and those of the older to the more mature.

This very brief sketch is all which we have room for at present. Should the culture be extensive we shall be more full in our extracts.

Cattle Show, Exhibition of Manufactures, Ploughing Match, and Public Sale of Animals and Manufactures, at Brighton, Mass. on Wednesday and Thursday, the 18th and 19th of October, 1826. To commence at 9 A. M. on the first day, and at 10 A. M. on the second day.

THE Trustees of the Massachusetts Society for the Promotion of Agriculture, encouraged by the patronage of the Legislature of this state, intend to offer in premiums, not only the sum granted by the Government for that purpose, but also the whole amount of the income of their own funds. They, therefore, announce to the public, their wish to have a Cattle Show, and Exhibition of Manufactures, &c. &c. at Brighton, on Wednesday and Thursday, the 18th and 19th of October, 1826; and they offer the following Premiums:

FOR STOCK.

For the best Bull, raised in Massachusetts, above one year old - - - - -	$30
For the next best, do. do. - - -	20
For the next best, do. do. - - -	10
For the best Bull Calf, from five to twelve months old	15
For the next best, do. do. - - -	10
For the next best, do. do. - - -	5
For the best Cow, not less than three years old -	30
For the next best, do. do. - - -	20
For the next best, do do. - - -	15

For the best Heifer (having had a calf,) - 15
For the next best, do. do. - - - 10
For the best Heifer, (not having had a calf,) - 12
For the next best, do. do. - - - 10
For the next best, do. do. - - - 8
For the next best, do. do. - - - 6
For the best Ox, fitted for slaughter, regard to be had to, and a particular statement to be given of, the mode and expense of fatting - - - 25
For the next best, do. do. - - - 20
For the next best, do. do. - - - 10
For the best pair of Working Oxen, - - 25
For the next best do. do. - - - 20
For the next best, do. do. - - - 15
For the next best, do. do. - - - 12
For the next best, do. do. - - - 8

[No oxen will be admitted to trial as *working oxen* under *four* years old.]

For the best Merino Ram - - - 15
For the next best, do. - - - 10
For the best Merino Ewes, not less than five in number 20
For the next best, do. do. do. - - - 10
For the best Boar, not exceeding two years old, to be kept at least one year for breeding, - - 12
For the next best, do. do. - - - 8
For the next best, do. do. - - - 5
For the best Sow, to be kept at least one year for breeding, - - - - - - 12
For the next best, do. - - - - 8
For the next best, do. - - - - 5
For the best Pigs, not less than two in number, nor less than four months old, nor more than eight - 10
For the next best, do. - - - - 5

None of the above animals will be entitled to premiums, unless they are *wholly bred* in the state of Massachusetts.

Any of the above stock, when raised and still owned at the time of the exhibition by the person who raised them, will entitle the claimant to an allowance of ten per cent. in addition. But sheep, to be entitled to any of the above premiums, must be raised by the person entering them.

NEW PREMIUMS FOR SHEEP.

For the best Dishley or New Leicester Ram - $15
For the best, do. do. Ewe - - - 15
For the best South Down Ram - - - 15
For the best do. Ewe - - - - 15

The above four premiums will be awarded on sheep either imported or raised in the state.

The persons claiming these premiums to engage to keep the imported animals within the state.

No animal, for which to any owner one premium shall have been awarded, shall be considered a subject for any future premium of the Society, except it be for an entirely distinct premium, and for qualities different from those for which the former premium was awarded.—*Any animal which shall have obtained a premium as a Milch Heifer shall not afterwards be entered for premium as a Milch Cow.*

FOR GRAIN AND VEGETABLE CROPS.

To the person who shall raise the greatest quantity of Indian Corn on an acre, not less than one hundred bushels - - - - - $20

To the person who shall raise the greatest quantity of vegetables, (grain, peas and beans excepted,) for winter consumption, of the stock of his own farm, and not for sale, in proportion to the size of the farm and stock kept, having regard to the respective value of said vegetables as food, stating the expense of raising the same, and the best mode of preserving the same through the winter - - - - - 30

To the person who shall raise the greatest quantity of

Winter Wheat on an acre, not less than thirty bushels - - - - - - - $20

To the person who shall raise the greatest quantity of Spring Wheat on an acre, not less than thirty bushels 20

To the person who shall raise the greatest quantity of Barley on an acre, not less than forty-five bushels 20

To the person who shall raise the greatest quantity of Rye on an acre, not less than thirty bushels. 20

To the person who shall raise the greatest crop of Millet on an acre, cut and cured for hay, not less than three tons, the claimant giving evidence of the time of sowing, the quantity of seed sown, and the quantity of hay produced - - - - - 20

To the person who shall raise the greatest quantity of Carrots on an acre, not less than six hundred bushels 20

To the person who shall raise the greatest quantity of Potatoes on an acre, not less than five hundred bushels - - - - - - - 20

To the person who shall raise the greatest quantity of common Beets on an acre, not less than six hundred bushels - - - - - - - 20

To the person who shall raise the greatest quantity of Sugar Beets on an acre, not less than six hundred bushels - - - - - - - 20

To the person who shall raise the greatest quantity of Parsnips on an acre, not less than four hundred bushels - - - - - - - 20

To the person who shall raise the greatest quantity of Mangel Wurtzel on an acre, not less than six hundred bushels - - - - - - - 20

To the person who shall raise the greatest quantity of Ruta Baga on an acre, not less than six hundred bushels - - - - - - - 20

To the person who shall raise the greatest quantity of Turnips on an acre, not less than six hundred bushels 20

To the person who shall raise the greatest quantity of

Onions on an acre, not less than six hundred bushels $20

To the person who shall raise the greatest quantity of Cabbages on an acre, not less than twenty-five tons weight, free from earth when weighed - - 20

To the person who shall raise the greatest quantity of dry Peas on an acre, not less than thirty bushels 20

To the person who shall raise the greatest quantity of dry Beans on an acre, not less than thirty bushels 20

To the person who shall give proof of having produced the largest quantity of dressed Flax, raised on half an acre, and not less than two hundred and fifty pounds - - - - - 20

To entitle himself to either of the premiums for Grain or Vegetable crops, the person claiming, must cultivate a tract of at least one acre in one piece, with the plant or production for which he claims a premium, and must state in writing, under oath of himself, and one other person, (accompanied by a certificate of the measurement of the land by some sworn surveyor,) the following particulars:

1. The state and quality of the land, in the spring of 1826.

2. The product and general state of cultivation and quantity of manure employed on it the year preceding.

3. The quantity of manure used the present season.

4. The quantity of seed used, and if Potatoes, the sort.

5. The time and manner of sowing, weeding, and harvesting the crop, and the amount of the product, ascertained by actual measurement, after the whole produce, for which a premium is claimed, is harvested, and the entire expense of cultivation.

6. In regard to Indian Corn, the entire crop of the acre offered for premium, if shelled, must be measured between the 15th November and 1st December. If not shelled, the whole must be weighed within the same

dates, and the trustees have determined to consider *seventy-five pounds of corn and cob* as equivalent to one bushel of shelled corn.

And in relation to all vegetables, (except Potatoes, Onions, and common Turnips,) at least *forty* bushels must be weighed, and *fifty-six pounds* will be considered as equal to one bushel, free from dirt.

AGRICULTURAL EXPERIMENTS.

For a mode of extirpating the worm that attacks the Locust Tree, which shall appear to the satisfaction of the Trustees to be effectual - - - $50

For a mode, hitherto unknown, to extirpate the *Borer* that attacks the Apple Tree, which shall appear to the satisfaction of the Trustees to be effectual and cheaper than any mode now in use - - 50

To the person who shall give satisfactory evidence on "Soiling Cattle," not less than six in number, and through the whole season, together with a particular account of the food given, and how cultivated - 30

To the person who shall make the experiment of turning in green crops as a manure, on a tract not less than one acre, and prove its utility and cheapness, giving a particular account of the process and its result - - - - - 20

To the person who shall prove to the satisfaction of the Trustees, that his mode of rearing, feeding, and fattening neat cattle is best - - - 20

To the person who shall prove to the satisfaction of the Trustees, the utility and comparative value of the cobs of Indian corn, when used with or without the grain itself, ground or broken - - - 20

The claim under the two last heads, together with the evidences of the actual product, must be delivered, free of expense, to Benjamin Guild, Esq. in Boston, Assistant Recording Secretary of this Society, on or before the first day of December next—the Trustees not intending

to decide upon claims under the head of Agricultural Experiments, until their meeting in December.

BUTTER, CHEESE, HONEY, CIDER, CURRANT WINE.

To the person who shall take up in the season, on his own farm, the greatest quantity of good honey, and shall at the same time exhibit superior skill in the management of Bees. [If there be any thing supposed to be new in the management, the same to be communicated in writing.] - - - $10

For the best Cheese *not less* than one year old, and not less in quantity than one hundred pounds - 10

For the next best, do. do. - - - 5

For the next best Cheese *less* than one year old - 10

For the next best, do. do. - - - - 5

For the best Butter, not less than fifty pounds - 15

For the next best, do. do. - - - - 10

For the next best, do. do. - - - - 7

For the next best, do. do. - - - - 5

For the greatest quantity of Butter and Cheese, made between the 15th of May, and the 1st of October, from not less than four cows, the quantity of Butter and Cheese, and the number of cows to be taken into consideration, and specimens to be exhibited at the Show, of not less than twenty pounds of each, and the mode of feeding, if any thing besides pasture was used - - - - 20

For the best specimen of Cider, not less than one barrel, made in 1824, manufactured by the person who shall exhibit the same, and from apples grown on his own farm - - - - 15

For the second best barrel - - - 10

The person obtaining the first premium shall be entitled to a further sum of $5, as a compensation for the premium barrel of cider, which will be retained and used at the Show Dinner, in order that he may have the credit of it.

[These premiums will be continued in future years. Persons claiming them must state, in writing, their process of making and managing their cider, and the kind of apples used.]

For the best specimen of Currant Wine, not less than one gallon, exhibited by any person who shall have made not less than 30 gallons, in the same season in which that which shall be exhibited was made, (a statement to be given, in writing, of the process of making the same,) - - - $10

For the next best, do. - - - 5

FOR INVENTIONS.

To the person who shall use the Drill Plough, or Machine, and apply it most successfully to the cultivation of any small Grains or Seeds, on a scale not less than one acre - - - 20

To the person who shall invent the best Machine for pulverising and grinding plaster to the fineness of twenty-five bushels per ton, and which shall require no more power than a pair of oxen or horse, to turn out two tons per day, and so portable that it can be moved from one farm to another without inconvenience - - - - 30

To the person who shall produce, at the Show, any other Agricultural Implement, of his own invention, which shall in the opinion of the Trustees, deserve a reward, a premium not exceeding *Twenty Dollars*, according to the value of the article exhibited.

In all cases proofs must be given of the work done by the Machine, before it is exhibited; and of its having been used and approved by some practical farmer.

Persons who have taken out patents for their inventions, are not thereby excluded from claiming any of the above premiums.

No claimant will be entitled to a premium unless in the opinion of the Committee, the machine or imple-

ment presented by him shall be superior to any designed for the same use, which shall have heretofore gained a premium.

FOR RAISING TREES AND HEDGES.

To the person who shall, on or before the first day of December, 1829, produce proofs of having, after this day, raised the greatest amount in value of Mulberry plants, either in standards, dwarfs or in hedges, for the purpose of raising the Silk Worm, and shall exhibit not less than *five pounds* of unmanufactured or raw silk of his own production - - - - $100

For the best plantation of White Oak Trees, not less than one acre, nor fewer than one thousand trees per acre, to be raised from the acorn, and which trees shall be in the best thriving state on the first of September, 1827 - - - 100

For the best plantations of White Ash, Larch, and Locust trees, each of not less than one acre, nor fewer than one thousand trees per acre, to be raised from the seeds, and which trees shall be in the best thriving state on the first of September, 1827 - 50

For the best Live Hedge, made either of White or Cockspur Thorn, planted after 1820, not less than one hundred rods, and which shall be in the best thriving state in 1827 - - - - 50

For the best Buckthorn Hedge, not less than one hundred rods, and which shall be in the best thriving state in 1828 - - - 50

To the person who shall have planted out on his farm, since the spring of 1816, the greatest number of Apple Trees, not less than one hundred in number, and who shall exhibit to the Trustees, at the Show, in 1827, satisfactory evidence of his having managed them with care and skill - - - - 50

FOR DOMESTIC MANUFACTURES.

To the person or corporation who shall produce the

best specimen of fine Broadcloth, not less than 1 5-8 yards wide, exclusive of the list, forty yards in quantity, and died in the wool - - $20
For the second best, do. do. do. - - 15
For the best superfine Cassimere, not less than 3-4 yard wide, or less than forty yards in quantity - 12
For the second best, do. do. do. - - 8
For the best superfine Sattinet, 3-4 yard wide, not less than fifty yards - - - 8
For the second best, do. - - - 5

FOR HOUSEHOLD MANUFACTURES.

For the best Woollen Cloth, 3-4 yard wide, not less than twenty yards in quantity - - 12
For the second best, do. do. - - - 8
For the best double milled Kersey, 3-4 yard wide, not less than twenty yards in quantity - - 12
For the second best, do. do. - - - 8
For the best Coating, 3-4 yard wide, not less than twenty yards in quantity - - - 8
For the second best, do. do. - - . 6
For the best Flannel, 7-8 yard wide, not less than forty-five yards in quantity - - - 10
For the second best, do. do. - - - 7
For the best yard wide Carpeting, not less than thirty yards in quantity - - - - 15
For the second best, do. do. - - - 7
For the best 5-8 yard wide Stair Carpeting, not less than thirty yards in quantity - - 10
For the second best, do. do. - - - 7
For the best pair of blankets, not less than 8-4 wide and 10-4 long - - - - 6
For the second best, do. do. - - - 4
For the best Woollen Knit Hose, not less than 12 pair in number - - - - 5
For the second best, do. do. - - - 3

For the best Worsted Hose, not less than 12 pair in number - - - - 5
For the second best, do. do. - - - 3
For the best Men's Half Hose, (woollen) not less than 12 pair in number - - - 4
For the second best, do. do. - - - 2
For the best Men's Woollen Gloves, not less than 12 pair in number - - - - 5
For the second best, do. do. - - - 3
For the best Linen Diaper, 5-8 yard wide, not less than 30 yards in quantity - - - 3
For the second best, do. do. - - - 3
For the best yard wide Diaper, (for table linen) not less than 10 yards in quantity - - - 10
For the second best, do. do. - - - 5
For the best specimen of Sewing Silk, raised and spun in this state, of good fast colours, not less than one pound - - - - 5
For the second best, do. do. - - - 3
For the best Linen Cloth, (for shirting or sheeting) one yard wide and twenty-five yards long - - 8
For the second best, do. do. - - - 4
To the person who shall produce the best specimen of any Cotton Fabrics in private families, not less than five pieces - - - - 20

All of the above manufacture smust be manufactured within the state of Massachusetts. And all manufactures, when presented, must have a private mark, and any public or known mark must be completely concealed so as not to be seen, or known by the Committee, nor must the Proprietors be present when they are examined; in default of either of these requisitions, the articles will not be deemed entitled to consideration or premium.

Animals, or manufactured articles, may be offered for premium at Brighton, notwithstanding they may have received a premium from a County Agricultural Society.

It is understood, that whenever, merely from a want of competition, any of the claimants may be considered entitled to the premium, under a literal construction, yet if, in the opinion of the Judges, the object so offered is not deserving of any reward, the Judges shall have a right to reject such claims. Persons to whom premiums shall be awarded, may, at their option, have an article of Plate with suitable inscriptions, in lieu of money. Premiums will be paid within ten days after they shall be awarded.

That in any case in which a pecuniary premium is offered, the Trustees may, having regard to the circumstances of the competitor, award either one of the Society's gold or silver medals in lieu of the pecuniary premium annexed to the several articles.

That if any competitor for any of the Society's premiums shall be discovered to have used any disingenuous measures, by which the objects of the Society have been defeated, such person shall not only forfeit the premium which may have been awarded to him, but be rendered incapable of being ever after a competitor for any of the Society's premiums.

All premiums not demanded within six months after they shall have been awarded, shall be deemed as having been generously given to aid the funds of the Society.

PLOUGHING MATCH.

On the second day of the Cattle Show, viz. the 19th day of October, Premiums will be given to the owners and ploughmen of three Ploughs, drawn by two yoke of oxen, and to the owners and ploughmen of three ploughs drawn by one yoke of oxen, which shall be adjudged by a competent Committee, to have performed the *best work, with least expense of labour*, not exceeding half an acre to each plough. Notice will be given in the public papers, at least six weeks before said day, that a piece of ground has been provided for twenty ploughs—ten double and ten single teams; and that entries may be made of the

competitors until the morning of the 19th. Preference will be given to those who enter first; but if, on calling the list at the hour appointed, precisely, those first named do not appear, the next in order will be preferred. There will be two Committees of three persons each—one to be the judges of the ploughing by double teams, the other of the ploughing by single teams—the latter to have assigned to them a part of the field distinct from that of the double teams.

Premiums as follows, (being the same for the double and single teams.)

First Plough	$15	Second Plough	$10	Third Plough	$6
Ploughman	8	Ploughman	5	Ploughman	3
Driver	4	Driver	3	Driver	2

In each case, if there be no driver, both sums to be awarded to the ploughman.

The persons intending to contend for these Prizes, must give notice in writing, to GORHAM PARSONS, Esq. of Brighton. The competitors will also be considered as agreeing to follow such rules and regulations as may be adopted by the Committee on the subject. The ploughs to be ready to start at 10 o'clock, A. M.

The result of the last Ploughing Matches at Brighton, and the satisfaction expressed by so many of our agricultural brethren, will induce the Society to continue these premiums annually, in connexion with the Cattle Show, as an efficacious means of exciting emulation and improvement in the use and construction of the *most important instrument* of agriculture.

The trial of Working Oxen is to take place on the first day at 11 *o'clock.*

Persons intending to offer any species of stock for premiums, are requested to give notice thereof, either by letter (post paid) stating the articles, or to make personal application to the Secretary of the Show, [JONATHAN WINSHIP, Esq.] Brighton, on or before the 17th day of October, in

order that he may enter such notice or application, so that tickets may be ready at 9 o'clock on the 18th. No person will be considered as a competitor, who shall not have given such notice, or made such application for entry, on or before the time above specified.

All articles of manufactures and inventions, must be entered and deposited in the Society's Rooms, on Monday, the 16th of October, and will be examined by the Committees on Tuesday, the 17th, the day before the Cattle Show; and no person but the Trustees shall be admitted to examine them before the Show. The articles so exhibited, must be left till after the Show, for the satisfaction of the public.

The applicants will be held to a rigid compliance with this rule relative to entries as well as the other rules prescribed.

The examination of every species of stock, will take place on the 18th, and Ploughing Match on the 19th of October.

The Trustees also propose to have the *Sale of Animals and Manufactures on the first day of the Cattle Show.* Besides such animals as may have been offered for Premiums, any others that are considered by them as possessing fine qualities will be admitted for sale. Sales to commence at 12 o'clock precisely. And for all Animals or Manufactures, that are intended to be sold, notice must be given to the Secretary, before 10 o'clock of the 18th. Auctioneers will be provided by the Trustees.

By order of the Trustees,

R. SULLIVAN,
J. PRINCE,
G. PARSONS,
E. H. DERBY,
Committee.

a nuary, 1826

Boston, Feb. 1, 1826.

TO THE CORRESPONDING SECRETARY OF THE MASSACHUSETTS AGRICULTURAL SOCIETY.

THE appendix promised to the remarks made in the preceding numbers of the Agricultural Repository as to the age and peculiar circumstances of the Orchard and Forest, have been submitted as to the former. Those on the Forest now follow.

It may be thought somewhat too excursive for the object and character of this Journal, which aims at improvement in annual crops, or more immediate practical results, to look so far back, and with too little certainty, for the laws which govern vegetable life, that we may be instructed for the future.

But the reign of this monarch of the vegetable kingdom extends through so many generations, and is as yet so undefined, that we are prompted to inquiry and research by something more than curiosity.

It is surprising what a degree of uncertainty generally exists as to the age of Trees beyond a given period. It is but very seldom that any corporate or other record occurs that can be satisfactorily relied on. In general they are presumed to have been set out when the house was built near which they stand, or by tradition, which is liable to great inaccuracy, by some predecessor far removed. In some instances which will follow a sufficient degree of accuracy has been arrived at. Others are left to inference, with such light as could be had on the subject. Amongst the instances best ascertained are two venerable Elms, lately standing before the house in Natick, formerly occupied by the Rev. Oliver Peabody, the successor of the celebrated Elliot, the Indian Apostle, so called. The latter made only occasional visits, tho' so acceptable to the Indians here

placed, as to have received many testimonials from them, besides the orchard before mentioned.

Mr. Peabody was settled in the ministry to the Indians in Natick, in the year 1722, and it has often been told me by his daughter, (some time since deceased,) as well as by others, that a deputation of Indians came, one bearing two Elm trees on his shoulders; that they presented themselves and requested permission of their minister to be allowed to set out those trees before his door, as a mark of their regard, or as the *Tree of Friendship.*

These trees flourished for about ninety years, when the larger one was stricken by lightning, and soon after failed. The other is in a state of decisive decline. These measured, one foot from the ground, about 21 feet, and in the smallest part, for 14 feet up, 13 feet. The growth was about 1½ inches per year. The Rev. O. Peabody died in 1752, after 30 years' ministry.

In 1753 the Rev. Stephen Badger was settled as the successor of the last mentioned gentleman. A like request was made by the Indians, and the same ceremony took place in the planting the Trees of Friendship before the door of the Rev. Mr. Badger. These trees are now in full vigour, having been set out 73 years. They are about 15 feet in circumference, near the ground, and nine feet above in the smaller part, and have given, in circumference, nearly 1½ inches growth a year.

The Elm attains a great size in lighter soils, and on plains, commons, high ways, &c. Cambridge has produced several that have been remarkable; there is one on the common that measures, near the ground, about 16 feet, above, 13 feet; another spreads to 22 feet, and is, above, 12 feet.

There was in the College Yard a very fine Elm, which was unfortunately destroyed, as is said, by the great quantity of pickle thrown about it when our troops occupied the colleges during the revolutionary war.

Of another Professor Sewall in his Eulogy on Dr. Winthrop thus speaks: "Under a venerable Tree, lately stand.

ing on our common, Governor Winthrop was wont to call together his little senate."

In Framingham there is one in the high way near the house of Mr. Haven, set out by his father about 90 years since. It measures, a foot from the ground, 20 feet; it is of great height, and is, for 10 feet above, 12 feet.

There are several more in Framingham, Stow, &c. of great beauty, which nearly correspond in measure, being near the ground about 18 feet, and above, about 13 feet.

In Lancaster there are many much admired Elms—two which measure, at the ground, 19 feet. That by the house of Wm. Stedman, Esq., set out by Col. Willard, is of great beauty. It retains its size far up about 15 feet.

In Essex several are spoken of. One which was cut down in Salem not long since, it is there thought would outdo all competition. Another on Mr. Crowninshield's farm measures, one foot from the ground, 22 feet; four feet above, 14 feet.

There are two fine Elms on Mr. Lowell's estate, in Roxbury, one of which spreads remarkably near the ground, to 27 feet, and is above about 18 feet.

There is a remarkable Elm Tree about three miles from Providence, as to which the Marshall of Rhode Island, the late E. Dexter, Esq. wrote me: "I have measured the Elm in Johnston, as you requested. It is, 3 feet from the ground, 21½ feet, and holds nearly that size for 12 feet. Mr. King, the owner, informed me that it was computed to contain 12 cords of wood.

Of the trees which have excited notice in this city there is no certainty as to the age of those in the Mall, on the border of the Common. But of those in what is called the Short Mall, east of the burial ground, Major Bumstead states, "That in the year 1762, the planting of the trees in common street took place by Major Adino Paddock and Mr. John Ballard. These trees, several of them, measure about 9 feet at 4 feet from the ground, and give a

growth of over 1½ inches in circumference in a year. They are what we here call the English Elm.

Liberty Tree, so called, stood at about 50 feet from the corner of Essex street. It was a fine majestic tree, overshadowing the house at the corner, of the proprietor Mr. Elliott, a bookbinder. In this building, then plaistered and of antique form, but now changed in its exterior, was a Hall, large for the times, of about 20 feet square, where the Whigs used to assemble. These meetings imparted to the tree a great degree of notoriety. As early as 1765 a sort of effigy of the Earl of Bute was suspended therefrom. Afterwards Mr. Andrew Oliver, who was stamp master, made his recantation under it. Notices were placed thereon, and many public acts and ceremonies were here had, as the journals of those times will more particularly show.

The tree near Castle street has been often remarked upon. It was lately prostrated by the axe to make way for a block of buildings. It measured at two feet from the ground about 13 feet, and by counting the rings would be deemed about 110 years old.

But, after all our research, the *Elm* of *Boston Common* overtops its race, and stands pre-eminent in this neighbourhood at least. It is a beautiful and finely proportioned object; near the ground it measures 23 feet, and about three feet above 20 feet in circumference. There are many rumours as to the setting out of this tree. Amongst the most probable there is one that an ancestor of Governor Hancock's family, Deacon Henchman, was the individual who conferred this benefit on the public.

In closing these notices of the Elm, it may be considered not improper to notice a publication stating the measurement of the Elm in Hatfield as of 34 feet circumference at 2 ft. from the ground, and 24 ft. 8 in. above, with a supposition that it was the largest tree in New England. The Gazette of Northampton states that there are several Elms which would compete therewith in that place, measuring 21,

22, and even 25 feet, and that one is said to measure 28 feet at some distance above the ground. If these are given correctly, they are of extraordinary magnitude.

The Chesnut, though it is not thought to compare with the Elm as an ornamental tree, may yet vie with it in size, and is of more value for timber. The measure of three only will be given. One in Holden is at the ground 21 feet, and narrows but little above. Two in the lot of Mr. Valentine, in Hopkinton, one is 25½ feet, and above 17½ feet. The other is at the surface 23 feet, soon dividing into separate limbs.

The oak is in all probability the most long lived of the forest. In the lot in Dorchester, given by Gov. Stoughton for the benefit of college education, to Dorchester scholars, I have measured several white oaks, which have been from 18 to 20 feet circumference, and in one of them counted upwards of 200 rings, indicating as many years. The black oak has been found to attain about the same size.

I close with the dimensions of the Hartford White Oak, or Charter Tree, so often alluded to. It is at the ground 36 feet, and in the smallest part 25 feet. The manner in which the Charter was concealed in it is matter of history and before the public.

I have in the paper on the forest said that the time when trees were most advantageously cut was when the period of quickest growth is over. But ornamental trees so continue long after that time, whilst others are prostrated.

I shall be gratified if what has been submitted conduces to the better management of the woodlot. Or if by showing how our commons, high ways, and pleasure grounds have been adorned and made interesting by those who have preceded us, I can excite or strengthen any efforts to the promotion of objects of such utility.

I am, sir, respectfully yours,

JOHN WELLES.